AMERICAN RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

ESTABLISHED 1831.

PUBLISHED WEEKLY, AT No. 54 WALL STREET, NEW YORK, AT FIVE DOLLARS PER ANNUM IN ADVANCE.

SECOND QUARTO SERIES, VOL. V., NO. 9.] SATURDAY, MARCH 3, 1849. [WHOLE No. 672, VOL. XXII.

PRINCIPAL CONTENTS.

Railway Progress 129
Iron Trade 129
Opening of the Vermont and Mass. Railroad .. 130
Political Economy of Machinery 130
Commercial Items 131
Exports of Milwaukee 131
Railway Law 131
Polarity of Bismuth 132
Coal in the Straits of Magellan 132
Necessity the Mother of Invention 133
Railroads Past, Present and Future 133
Railroad Items 134
Education of Engineers 134
Submarine Telegraph Communication between England and France 135
Ocean Steam Navigation 136
Railroad from New York to Burlington 136
Cleveland and Pittsburgh Railroad 136
Lexington and Mississippi Railroad 137
Mobile and Ohio Railroad 137
Western and Atlantic Railroad 137
Connecticut River Railroad 137
Railways in Canada 137

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Saturday, March 3, 1849.

Office of the Richmond & Danville Railroad Company,
Richmond, 22d Feb., 1849.

SEALED PROPOSALS will be received at this office until Monday, the 12th March next, for the construction of a STONE BRIDGE over the James River, for the Richmond and Danville Railroad.

Plans and specifications will be ready for examination at the office of the Company by the 6th proximo.

Where prices and responsibility are equal, a preference will be given to the offer wherein the largest amount of the Stock of the Company will be received in payment. ANDREW TALCOTT, Chief Engineer.

Railroads.

Since Monday the 5th ult., regular passenger and freight trains have been running from Boston to Northfield, over the Fitchburg, Cheshire, Sullivan, and Vermont Central roads. The business of this route, says the Windsor Journal, has thus far been quite large, realizing the expectation of the most sanguine. And yet we learn that the business on the routes of the N. H. Central and Passumpsic roads has fully held its own—thus showing an increase of travel and business in proportion to the increase of the facilities of communication. All looks promising for the future.

Railway Progress.

[Continued from page 114.

Connecticut.—The *New Haven Canal R. R.* is in operation from New Haven to Farmington, and is in progress from the latter place to the line of the Western R. R., within three miles of Springfield. An embranchment of the line to Westfield is intended, provided legislative authority is obtained from Massachusetts.

The *Naugatuck R. R.* is in progress of construction, from the *Milford* Junction, 12 miles this side of New Haven, on the line of the New York and New Haven R. R., to the parish of Winsted, in the town of Winchester. The plan of extending it to the line of the Western R. R., at Pitsfield, only awaits the grant of authority from Massachusetts to ensure its early completion to the place last named; thereby ensuring six *parallel lines of Railway between the Connecticut River and the Hudson, on the completion of the Hudson River and Harlem Roads.*

The *Hartford and Willimantic R. R.* is in rapid progress, and the plan of extending it to Providence seems likely to go forward successfully, notwithstanding the "air line" project.

The *New London and Willimantic R. R.* is also in progress of construction.

A Railway from *Hartford to Bristol*, to connect with the *Canal R. R.*, has been agreed upon, and the stock for its completion subscribed.

The *Air Line* project is being vigorously urged in both Connecticut and Rhode Island, with a view of connecting in Massachusetts, with the *Norfolk County R. R.* before spoken of.

This completes the list of New England Railways in progress of construction at the commencement of the year. We find by the New Hampshire papers that the *Dover & Cocheco R. R.* has been commenced upon, and a sharp rivalry has sprung up between that company and the *Portsmouth Great Falls and Conway R. R.*

More than one thousand miles of new Railway are required to finish up the lines already commenced in New England, about five hundred miles of which are now so far advanced that the same can be opened for travel during the year 1849.

New York.—The *New York, Harlem and Albany R. R.*, already extended to Dover, is to be put in progress towards Albany during the coming season.

The *Hudson River R. R.* has a length of line of 142 miles. In a circular recently put forth, the Directors say they will be able to open the road to Peekskill in the month of July next, Poughkeepsie in autumn, and to Albany in season for the winter business of 1850-1.

The *New York and Erie R. R.* is in progress from Binghampton to Elmira, and assurances are given that it will be opened to Corning, 80 miles from Binghampton, and 315 miles from New York city, during the year 1849.

The *Northern, or Ogdensburgh R. R.*, already opened 12 miles from Lake Champlain, is in full progress; from the most recent informatin, we learn that a good portion of the distance will be in operation during the year.

A railway from Syracuse to Owego, in Tioga Co. or Binghampton, seems to be regarded as certain of accomplishment at an early day. More than 250 miles of new road will probably be opened in New York during the year.

New Jersey.—The *Somerville and Easton R. R.* has reached such a position, that its completion the present year seems an easy matter. We are assured that it will be put in progress at an early day.

Pennsylvania.—The *Central R. R.*, to extend from Harrisburgh to Pittsburgh, a distance of 251 miles, is in rapid progress. The railway from *Tymanend to Catawissa*, 36 miles will be opened the present year.

The Beaver Meadow Branch, 12 miles is in progress, and will be opened the present season.

To be continued.

The Iron Trade.

A most numerous and highly influential meeting of the iron and coal masters took place at Birmingham, on Thursday the 11th. The meeting was not only numerous and respectable, but highly gratifying in its results. The utmost firmness prevailed, and the accounts given by all parties of the improved condition of the trade were exceedingly gratifying. It was reported that many excellent orders had arrived by the last two packets from America, and these, coupled with the fact that our home stocks have become nearly exhausted, led to a determination not to seek orders at present prices.—The engagements entered into during the past quarter will occupy the furnaces two months, and the masters are not disposed to accept of fresh orders unless at an advance. It was stated that the present rates, £6 10s. for bar, and £3 19s. for pig iron, are not remunerative, and nothing but necessity, caused by the recent destructive competition of the Welch and Scotch markets, could have led to such low prices. It was thought, however, that the lowest point was reached, and the prospects for the new year were cheering.

Opening of the Vermont and Massachusetts Rail Road.

The ceremony of opening this Road was celebrated at Brattleboro' on the 20th inst. The Road extends from Fitchburgh through the town of Westminster, Ashburnham, Gardiner, Baldwinville, Royalston, Athol, Orange, Wendell, Erving, Montague, Northfield and Vernon, to Brattleboro', 70 miles from Fitchburgh, and 119 from Boston. A very large number of the friends of the road were present, and after having partaken a collation prepared at the Depot, they repaired to the Central Church, where two or three hours were spent in listening to speeches from various gentlemen, for a report of which we are indebted to Perley's Picnic.

Alvan Crocker, Esq., President of the Vermont and Massachusetts Railroad Company, recounted the obstacles which had been overcome, and gave an outline of the history of the enterprise. The section of country which this road traverses was examined, with the view of intercommunication with Boston, as early as 1826, and a survey of a portion of the route was made ten years subsequently, in 1836. The charter was obtained in 1844, and the construction commenced in October, 1845; so that the building of the road, it will be perceived, has occupied something more than three years.

Mr. Crocker said that in the year 1842 he came to Brattleboro' for the purpose of enlisting the sympathies and feelings of the citizens in favor of the Fitchburg Railroad. He perambulated every portion of the town, and urged on the people the necessity of their doing something towards the enterprise —claiming that if started it would ultimately arrive at Brattleboro'. At that time to proclaim any such doctrine, a man would be looked upon as demented —and in the first fortnight of his labors, Mr. Crock obtained not one dollar. He had almost despaired of obtaining any aid in Brattleboro', when two gentlemen came to the scratch, as he termed it, and subscribed for *two shares* apiece, not without taunts and sneers, however, from the less enthusiastic portion of the citizens. The names of those two individuals were Mr. Noyes, Cashier of the Bank, and Mr. J. D. Bradley. The day of small beginnings was the germ of this enterprise, and from that time the work has steadily progressed. Brattleboro' soon increased her subscription to 80 shares. This was to the Fitchburg Railroad to Boston, 120 miles distant. To the Vermont and Massachusetts Railroad, Brattleboro' subscribed $100,000.

Mr. Crocker said that he fearlessly proclaimed that no road of the same length had met and overcame so many topographical difficulties. Four miles out of Fitchburg 40,000 yards of quicksands were cut down—quicksands into which, if a laborer fell, he required the aid of his fellow-laborers to extricate him. In coursing up the Nashua, that river is crossed no less than six times—By four wooden and two stone arch bridges. Seventeen bridges are thrown across Miller's river to avoid curvature, and that river, in three or four instances, was diverted from its course, and a new bed made. Between South Royalston and Athol, 80,000 yards of the hardest *pan* imaginable were excavated, and this was only accomplished by working night and day. One ledge was cut through where the steam drill in a whole day only drilled ten inches. The beds of rivers had been turned, and the rivers spanned twenty-five times. He said that the company had started to build one of the best roads in the country, and they had fulfilled their intentions. Besides the natural difficulties which had to be overcome, the company have had to struggle with monetary difficulties, which materially retarded the completion of the road. But Mr. Crocker felt gratified in being able to say that this road, 70 miles in length, and constructed in the most perfect manner, had been completed in little more than three years. Of the prospects of the road, Mr. Crocker spoke most encouragingly. When the branch reaches Greenfield it will control the trade of the Deerfield valley. This branch is in part contracted for. At the commencement of the Vermont and Massachusetts Railroad, at Fitchburg, it unites with the Fitchburg and Worcester. At South Ashburnham, it receives the Cheshire, Sullivan County, Central, Passumpsic and Ogdensburg chain—about 300 miles of continuous road. At Greenfield it will join the Troy road and also the Connecticut River road. At Brattleboro' it joins the contemplated Vermont Valley Railroad to Bellows Falls, where it connects with the Rutland and Burlington Railroad. The road to Troy will have the lowest grade and the least curviture of any road which could be constructed to the Hudson River. At Troy, a direct course is contemplated to Oswego, on Lake Ontario, and then if we wish we can proceed to the Pacific Ocean. The principal obstacle to a railroad to the Pacific Ocean, Mr. Crocker declared to be the Green Mountains, for, he said, the South Pass of the Rocky Mountains can be passed with a 40 foot grade. Mr. Crocker's plan is to tunnel the Green Mountains. He spoke of the Pacific road in a most enthusiastic manner, and also of Internal Improvements generally. He regretted that the road had not been completed at Brattleboro' before the previous directors retired from office. He paid them a very high compliment for their energy and perseverance, and said that without their exertions the road would not now have attained this point.

In the Evening, Larkin G. Mead, Esq., presided. He stated the object of the meeting, which was to mature plans for the completion of the Vermont Valley Railroad, from Brattleboro' to Bellows Falls. The importance of the project was urged Mr. Crocker. The whole cost had been estmated at $736,000—twenty-three miles at $32,000 per mile—and undoubtedly, the road could be completed during the next season. The estimate was thought to be liberal; the highest grade was stated to be twenty-nine feet to the mile. A very liberal charter has been obtained, making the road subservient to the conveniences of other roads. The importance of the road was explained, and it was stated that in 1850, three hundred miles of Railway would be finished to Bellows Falls. A resolution was adopted that the Commissioners be instructed to communicate with the officers of other roads interested, and to call a convention to consider the matter, on the first Wednesday of March. The books were opened and some of the stock subscribed for on the spot.

It is with genuine pleasure that we are able to announce the opening of this road. We do not know of a road, the friends of which have so steadily persevered under so many discouragements and so much opposition. It was evidently not a pet of Massachusetts.—Its friends have at last accomplished their work; and when it connects with other roads it will be completed. We see no reason why it will not do a profitable business.

Political Economy of Machinery.

The February number of the Glasgow Mechanic's Journal contains a translation from a recent French work on Political Economy, by Joseph Ganner. The translation given is the chapter devoted to the political economy of machinery. After noticing the common argument against the introduction of labor saving machines, as throwing laborers out of employ, the writer goes on to say:

In many cases, machines, far from supplanting human labor, have multiplied it. In fact, every abridgment of labor, by reducing the cost of production, carries the manufactured article to the door of a greater number of consumers; and experience proves that consumers multiply in a greater degree than the price decreases, especially when the method of manufacture improves the commodity. The diminution of the price by a fourth, has not been known to *double* the consumption We will only cite two examples—printing and cotton spinning Although the steam-press enables one man to do the work of two hundred, the multiplication of books, the arts which are connected with them, such as the casting of type, the fabrication of paper, the professions of author, corrector, binder &c., employ a thousand times as many persons as formerly were occupied in them* And what a difference in form and price between the manuscripts of early times, and the books of the present! When we observe the perfection of the machinery for spinning cotton, and the admirable rapidity with which the bobbins are covered with thread, we may fancy that the greater number of persons formerly employed in spinning have been thrown out of work; yet precisely the reverse has happened. Before the invention of machinery, only 5200 female spinners at the wheel, and 2700 weavers, altogether 7900 persons, were employed in England; whilst in 1787, ten years later, 150,000 spinners, and 247,000 weavers, or 352,000 persons, were reconed. Since that time, mechanics have passed into another phase. The same business is done with fewer workmen, and steam has taken the place of manual labor in a great number of manufactures. However, the number of workmen has increased. Mr. Baines, in his History of the Cotton Manufacture, has established, that in 1833 there were 2`3,000 spinners or weavers by machinery, and 250,000 loom-weavers, in all 487,000 persons. Adding the persons employed in collateral branches of industry, such as printing on stuffs, the making of tulles, embroidery, caps &c., Mr. Baines arrives at the number of 800,000; or 1500,000, taking into account the old men, women, and children, supported by the work-people; and two millions, reckoning the carpenters and masons employed in building manufactories, and the makers of loom-frames, without their children, and old persons. We arrive at the same figures in comparing the cotion imported in 1769, and that imported in our days. Although it is possible there may be statistical exaggerations, we cannot but acknowledge the great increase of labor employed in the cotton manufacture, in consequence of the invention of machinery intended to abridge it, without taking into account the sailors, the carriers, the merchants, the travellers, the brokers, and the retail dealers, who are engaged in it, each in their own busiuess.

The history of the cotton manufacture would furnish matter which would admit a considerable expansion, if we were to analyse the prodigious increase in the consumption of cotton throughout the world, the employments of various kinds to which it has given rise collaterally, not only amongst the manufacturing classes, but amongst the commercial and agricultural classes as well, and the various products which it has been necessary to make in order to obtain those immensely valuable accumulations of manufactnred cotton.†

Thus, if it be true that machinery, at a given moment, displaces human labor, it is not slow to create employment for a much more considerable number, and to compensate injury to individuals by a benefit to society, namely, by enlarging the supply of commodities, and diminishing their price by stimulating consumption, and by multiplying enjoyments, which increase capital and the demand for labor.

These facts would also be an answer to that other allegation, that machinery depresses wages, because the demand for labor will not increase, unless those who employ labor are able to employ and remunerate the increased demand. Machinery for spinning cotton, so far from reducing wages actually raised tnem during the first ten years after the invention came out. A woman earned two francs fifty centimes, in place of one franc; and a man earned five francs instead of two. Wages were afterwards lowered, by the disproportionate increase of the population; but it is well to remark, that in 1833 Mr. Baines established, by very plausible calculations, that if the 7900 operatives of

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* See an account of the improved "Times" machine, in a subsequent page.—[Ed. P. M. J.

† In 1834, M. de Jounes in his statistics of Great Britain, thus summed up the comparative conditions of the cotton trade in Great Britain and France. Annual manufacture: in England, 900 millions of francs; in France, 250 millions. Home consumption: in England, 400 millions; in France, 193 millions, Individual consumption: in England, 16 francs, 66 centimes; in France, 6 francs, 86 centimes. It was calculated that the cloth exported from England in 1833, was long enough to go ten times and a half round the earth. In a paper, published in the *Jonrnal des Economistes*, (vol. 16.) the exportation of woven goods from the same country in 1845, is estimated at 479 millions of francs; that of thread, at 176 millions; and the demand in 1843, at 263 millions. A franc, we may remind the reader, is worth 9½d. of our money.

1767 had between three and four millions of francs amongst them for wages (three or four francs each), the 800,000 of our days had 455 millions, (560 francs each.) The railways offer analogous facts. We might suppose they would put down drivers, grooms, postillions &c., and render horses less useful and less expensive. Exactly the contrary has happened; and nothing is easier to explain. Do not railways multiply travellers and traffic? and, as a consequence, are not the lateral ways of communication more used, as well as horses upon them.

The perfecting of the means of intercourse diminishes the cost of production, and advances the industry of a people. There is an intimate connection between the improvement of the means of conveyance and that of markets. Our epoch will be especially remarkable for the improvement of the means of communication—rivers, canals, roads and railways. The last, especially, seem as if they would change the face of the world. Following and assisting this formidable developement of steam, the results which the new mode of communication do and will produce are uncalculable. The statist will, some time or other, disclose them to us. Travelling becomes a thousand times more common; some villages will assume the importance of towns, and many towns will certainly lose rank. The localities of industry have already been greatly moved; some will be reanimated, others will disappear; joys, griefs unheard of, will flow from the new phases of production, so radically modified by these new and powerful organs of conveyance. In some there will be destruction in some particulars, but reanimation on the whole. But nothing can give us any idea of the mysterious revolution which time has in store, not even the extraordinary results at the end of the last century and the commencement of the present one, of cotton spinning by machinery, and in all branches of industry dependent and similar. It is remarkable that steam is still the first cause, with the simple addition of two rails.

The impulse has been given. The United States, England, and Belgium, have for some years been furrowed by these new modes of communication; Germany and Russia have tasted of this enormous influence; France is hastening forward in the same path; Northen Italy already possesses lines of railway; and the rest of the Peninsula is striving to obtain others. Spain, Portugal, Sweeden, and other countries, are also alive to the impulse.

All that we have said of machinery is likewise applicable to discoveries of every kind; to all processes, of what nature soever they may be, which aim at producing more quickly in a better manner—in other words, at a cheaper rate.

COMMERCIAL.

Pork Trade of the West.

Hogs Slaughtered in 1848-9.—In accordance with previous custom, we have, at the close of the packing season, visited each packing house, and from the several statements, made up the aggregate of the season's business in Cincinnati, and immediate vicinity. We find that the whole number slaughtered in Cincinnati and Covington in the season of 1848-9, just closed, is 326,000 head, and the whole number cut here, including all that have been brought in dead by river, canals, railroad and waggons, 410,000 head. This is, we are satisfied, the entire aggregate, as no house, however small its business, has, we think, been overlooked. At the close of last season, we stated the aggregate amount cut to have been 461,000 head, but subsequent developements satisfied us that the actual amount was fully 500,000 head, and so we have before stated it. In comparing the last two seasons, therefore, a falling off of 90,000 head is shown in the season just closed. We have, from our own observation, estimated the difference of the two years at fully 100,000 head, and did we not feel considerable confidence in the individnal statements this season, would still be disposed to so estimate the business of the two years.

On recurring to the statistics of previous years, the two last are shown to have been much larger than any preceeding, the business of 1845-6 standing next in point of magnitude, in which season 305,000 head were cut here.

We avail ourselves of statistics in possession of friends, and of published statements to show the number cut at sundry points in the West during the past season, and name the number cut in the season of 1847-8 so far as convenient:

	1847-8.	1848-9.
IN KENTUCKY.		
Louisville,	100,000	169,600
Maysville,	10,000	25,000
IN INDIANA.		
Madison,	75,000	85,168
Perrysville,		7,000
Eugene,		7,000
Newport,		5,000
Covington,		5,500
Portland,		3,000
Williamsport,		10,000
Attica,		9,000
Lafayette,		45,000

[The Perrysville Eagle estimates the number packed in Clinton at 16,000 head, and the number in Vermillion county at 35,000.]

Brookville		10,000
Laurel		12,000
Connorsville		15,000
Cambridge City		20,000
Indianapolis and neighborhood		35,000
IN OHIO.		
Milford, all wagoned to and cut here		6,000
Dayton		8,000
Plainfield, all wagoned to and cut here		2,500
Waynesville and Corwin		12,000
Bellbrook		3,000
Lebanon		8,000
Centreville		1,000
Port William		1,300
Circleville		3,000
Chillicothe		75,000
Columbus		10,000
Clarksville		2,000
Wilmington		4,000
Springfield		2,000
Preble county	27,228	20,160

We have not the means at hand with which to make a reliable comparison with the season of 1847-8, in most of the instances omitted, and therefore defer it to a future number. It is seen that there is a large increase in Maysville and Louisville: and in the Whitewater Valley, Indiana, the increase is very considerable, there being the prospect of a public conveyance this season, while there was not last year, by which to bring the product to market. We do not see much evidence of a falling off in the Scioto Valley, and believe that so far as numbers are concerned an estimate of any large falling off in the West, as a whole, will prove a miscalculation, but there is no doubt, we believe, of a falling off in weight throughout this section of country, especially as regards Ohio and Indiana hogs.—*Cincinnati Exchange Reporter.*

Exports of Milwaukee.

By personal inquiry at the different Warehouses, in our city, we have obtained the statistics from which the subjoined table of the exports from Milwaukee during the past season of navigation, was compiled. It is believed to be, so far at least as the leading items are concerned, very nearly accurate, and attests the growing Commercial importance of our young city.

Exports of 1848.

Wheat,	602,474 bush.
Flour,	92,732 bbls.
Pork,	2,650 bbls.
Lead,	1,883,120 lbs.
Hides,	11,235.
Ashes,	96,104 lbs.
Pails and Tubs,	2,100 doz.
Furs,	12,714 lbs.
Wool,	
Copper,	25,039 lbs.
Broom Corn,	214 bales.
Pulverized Corn,	135 bbls.

We compare the leading items of Export, Wheat and Flour, with the shipments of the same articles in previous years; commencing with 1845 when the first export of Wheat to any amount was made:—

	Wheat.	*Flour.*
1845	95,510 bush.	7,550 bbls.
1846	213,448 "	14,756 "
1847	598,011 "	34,840 "
1848	602,474 "	93,732 "

If we reduce the Flour to Wheat (at 4½ bushels to the barrel) the exports for the four past years would compare as follows:—

1845,	129,485 bush.
1846,	284,350 "
1847,	744,791 "
1848,	1,024,268 "

The coming season of navigation, if no unforeseen event occurs to check the shipments of produce to the East, will show, we think, a proportionate increase. Judging from the receipts of the past two months there will be in store here, at the opening of navigation, not far from 500,000 bushels of Wheat and 40,000 or 50,000 barrels of Flour. If, in addition to this shipment of last year's crop, the ordinary proportion of the coming crop shall go forward to market next fall, the exports for 1849, in Wheat and Flour, will not fall much short of a million and a half bushels.—*Milwaukee Sentinel and Gazette.*

RAILWAY LAW.

Engineer and Surveyor.

The plaintiff, an engineer, sued the defendant, as the Director of a Railway Company, for the expenses of surveys, &c. It appeared at the trial that the defendant had been an active member of the Committee, but that the Company had been completely registered.

Held, that the defendant was not liable, although the Company could not be sued, the contract not having been under seal. (Stevens *v.* Green, 10 *Law Times*, 326.)

In an action of debt for work and labor as an engineer of a Railway Company, and for money paid, it appeared that the defendant was a member of the Managing Committee, and that the Plaintiff having been the promoter, had concocted this scheme, and appointed the Committee-men. At a meeting of this body, a resolution was passed pledging the Board to pay the plaintiff his advances, and supply him with cash as soon as the deposits came in. This resolution was passed in the presence of the plaintiff, who afterwards sued the chairman for work done and money paid subsequently to that period.

Held, that there was not any evidence to go to the jury in support of the case for the plaintiff. (Pritchard *v.* Hughes, 10 *Law Times*, 503 Pollock.)

In an action for work and labor as a surveyor against a Provisional Committee-man, the plaintiff claimed by his particulars of demand an entire sum of £600 for surveying from the 1st of September to the end of October, 1845, within which interval the defendant joined the scheme.

Held, that if the plaintiff had entered into a single and entire contract to survey the line before the defendant joined the Company, the latter was not responsible, though part of the work was done after he had joined it; but that the plaintiff's remedy was against the actual contractors. (Tootel *v* Frewen, 10 *Law Times*, 269.)

Liability of Railway Companies as Carriers.

Every person employed by a common carrier, whether by the name of sub-contractor, agent, servant, or otherwise, to perform any part of the work which the carrier has undertaken to perform, and every person employed by such person for that purpose, is, "a servant in the employ of the carrier," within the 8th section of the 11th Geo. 4, and 1 Will. 4, c. 68, which renders common carriers liable for the felonious acts of servants in their employ.

A bale of silk above the value of £10 was delivered at a station of a Railway Company, to be carried by the Company as common carriers, to London, and there delivered to the plaintiff, but only the ordinary charge for carriage was paid, the value of the parcel not having been declared, as required by a notice stuck up in the booking office of the Company, according to the provisions of the 11 Geo. 4, and 1 Will. 4, c. 68, s. 2. On the arriva

of the silk at London, the Company's servants put it into a van belonging to A. B. who was usually employed by the Company to deliver in London all goods arriving by their line. The van was under the care of C. D. a porter, and a delivery ticket sent with the parcel, headed with the name of the Company, but signed by A. B. in which it was stated that any servant of the Company taking more than was stated therein, would be dismissed; and in that ticket the names of the several porters were given, including that of C. D.; but it appeared by other evidence, that he was the servant of A. B. hired and paid by, and liable to be discharged by him. The silk never reached its destination, having been stolen by C. D.

Held, that C. D. was a servant in the employ of the Company, within the meaning of the 8th section of the statute.

Semble, that the delivery ticket did not operate either by way of estoppel, or as conclusive evidence against the Company, that C. D. was their servant. (11 *Law Times*, 226,

LIABILITY OF SHAREHOLDERS FOR CALLS.

In an action for calls upon certain shares in a Railway Company, under the statute 8 and 9 Vict. c. 16, s. 26, it appeared that the defendant was not an original subscriber but had purchased scrip certificates of the shares in question, and before the call was made, sent them into the Company with a claim to be entered in their books as the holder thereof. His name was entered in a draft register of shares, and a receipt for the scrip sent to him: but his name was not entered in the sealed register until after the call was made.

Held, that the plaintiffs were not entitled to recover; and, *semble*, that in this respect there is no difference between the case of an original subscriber and that of a transferee. (17 *Law Journal Reports*, 17, 102.)

LOAN-NOTES.

A Railway Company resolved to raise a sum of money upon loan-notes payable at the end of five years, bearing interest at the rate of £5 per cent. per annum, in the meantime, with an option to the holder to convert them at the expiration of three years into shares of the Company at a certain rate per share, under the powers of an Act of Parliament, to be applied for as early as possible; and the Company advertised for tenders accordingly; one half of the loan to be paid by the Company when the tenders should be accepted (February 1842,) one quarter on or before the 15th of April, and the other quarter on or before the 15th of July following. The loan was made by various persons to whom on the payment of the last instalment (July 1842,) loan-notes were delivered, promising to pay the sum expressed therein on the 15th of February 1847, with an endorsement thereon referring to the resolution, and intimating that in pursuance thereof, application was intended to be made to Parliament for an Act, under the terms of which the bearer would be entitled on the 15th of February, 1845, provided previous notice was given, to convert the loan-notes into shares at the price mentioned in the resolution. An Act was afterwards obtained enabling the Company, for the purposes therein mentioned, to issue new shares of such amount, and to be appropriated and disposed of in such manner, for such prices, and by such ways and means, as by the order of a meeting of the Company should be determined. By a meeting of the Company, subsequently held, it was resolved that the new shares authorized by the Act should be raised and allotted to and amongst the holders of loan-notes in the manner and upon the terms dictated by the Act.

Held, that the effect of the Act and the subsequent resolution of the Company, was not to allot the new shares amongst all the loan-note holders unconditionally, but only as they had acquired a right to such allotment by virtue of their antecedent contract.

That the term of five years, at the end of which the loan-notes were to be paid off, must be reckoned from February, 1842, when the first instalment of the loan was advanced; and that the three years during which the holders were to have the option of converting the notes into shares, must be reckoned from the same time.

That from the nature of the property which was the subject of the option, time was of the essence of the contract.

That the endorsement on the loan-notes did not enlarge the time of the option by continuing it until limited by an Act of Parliament, or otherwise. But whether the Company had power to restrict the option, by requiring notice before the 15th of February, 1845, (the end of the three years,) or whether the loan-note holders accepting the notes with the endorsement expressing that restriction, without objection or protest, would be bound thereby?—*quære*. (Campbell *v.* the London and Brighton Railway Company, 5 *Hare*, 519.

Polarity of Bismuth.

Professor Faraday delivered a lecture, yesterday evening week, at the Royal Institution, Albemarle street, to a very crowded and *distingue* audience, upon the polarity of bismuth. The learned professor said, that he had undertaken to bring before his audience the nature of a certain newly discovered property of matter. Nothing in these days of wonder, was more surprising than the extraordinary progress which had been made in the knowledge of the magnetic force, and of the manner in which that force appeared to dominate over matter; indeed, its influence now might almost be assumed to be as universal as that of gravitation itself. Not long ago he had the honor of exhibiting some of the properties of dia-magnetism; and now he hoped to bring before his auditory clear proofs that the powers which made matter crystalline had something of a starting point in the magnetic forces. He had procured, therefore, a powerful magnet to illustrate his subject; but they must not suppose that the unusual power of the magnet had anything to do with the phenomena, as precisely the same results might be obtained from any magnet. The talented lecturer then, as a preliminary, exhibited his apparatus, which was arranged with a nicety and ingenuity befitting his high reputation as a successful experimenter. The magnet, so to speak, was made magnetic by a voltaic battery, so that by cutting off the communication, it was at once no magnet, and, by restoring it in the next moment, a magnet of the most powerful description. This was shown by the application of pieces of iron to the poles, which were placed there and moved about readily enough; but, in an instant, by restoring the connection with the voltaic battery, they became immoveable, and no force of arm could alter their position. But they were not to suppose the magnetic power existed only by contact; for some distance all around, called very properly the magnetic field, the same influence existed; and it was particularly strong between the two poles. This he made apparent by suspending a piece of copper, and making it spin with great velocity, when, upon the poles being made magnetic, the motion was suddenly arrested. To show this more clearly, the professor took a plate of copper, and began to pass it through the space between the poles, after the manner of a carpenter sawing a piece of wood—of course, with the greatest possible ease, as it was in contact with nothing but the atmosphere; but, on the poles being made magnetic, it was moved with the greatest difficulty; and the professor was in the predicament of the aforesaid carpenter sawing a piece of iron-wood with a bad saw. A similar experiment with a plate of copper, turned by a wheel, also illustrated this power most successfully. It only remained to be premised, that other metals were subject to the same power: he had used copper, but iron was influenced in a still more extraordinary degree.

Bismuth was a very beautiful metal, and one most interesting to the philosopher, on account of its being at the head of those bodies which were called diamagnetic. It was repelled from the poles of the magnet almost as strongly as iron was attracted to them. He was casting the other day some crystals of bismuth, and, on subjecting them to equatorial force, he observed that they pointed some this way and some that way, but that each crystal had invariably its own direction. This singular regular irregularity convinced him that it was the result of obedience to some law, and, by a variety of experiments, he discovered that the direction depended solely on the cleavage of the crystals. A great many crystals being all at once subject to the same influence, it became obvious that the pointing was not the result of anv sympathetic influence; if the cleavage of two crystals were the same, then they would point the same, and not otherwise. The learned professor then proceeded to show this peculiarity, by suspending various crystals of bismuth between the poles of the magnet, and in every case, by examining the direction of the cleavage, he was successful in predicting the direction in which the poles of each crystal would set. In the same way, that the indicator of the mariner's compass disturbed, would, when left to itself, return to the north; so the crystals of bismuth, although placed in other directions, would, when left to themselves, return each to its own particular set, pointing indifferently with either end of its pole. This was what he called the polarity of bismuth.

Another curious fact was, that this polarity depended upon crystallisation, for when the very same crystals which had shown a marked obedience to this new law were pulverised, the property was entirely lost. Another consideration of moment was, as to where the line of polarity lay. It was generally said that bismuth crystalised in cubes, but he had never yet procured crystals which which perfect cubes; they were more properly rhomboidical, with all the solid angles taken off at equal planes of cleavage. His experiments then went to prove, that the line of polarity was diagonally from corner to corner, taking the longest breadth of the rhomboid. This formed what he called magneto-crystallic axiality; he used the word axiality rather than polarity, as it better expressed this newly discovered property of bismuth. Other crystalline metals, such as antimony and zinc, he doubted not, possessed the same axiality, but he was not prepared to say in what degree: and a most interesting field was opened for inquiry, scarcely less beautiful than that of diamagnetism. This deservedly popular lecturer concluded his discourse by several other admirable experiments, in illustration of the properties of this newly discovered axiality, and stated that he purposed, at no distant period, to bring some further new peculiarities of bismuth before the Institution.—*London Mining Journal*

Coal in the Straits of Magellan.

The following are copies of reports from Captain Henderson and Commander Paynter, of the *Gorgon*, stating the results of their search for any coal formation in the Straits of Magellan:—

Her Majesty's Steam-vessel Samson,
Rio Janeiro, Oct. 22, 1848.

SIR,—I have the honor to acquaint you, that in compliance with orders from Rear-Admiral Hornby, to make further perquisitions respecting the coal said to be found in the Straits of Magellan, I obtained at Port Famine, by the kindness of the Governor, a guide to conduct me to the veins of Punta Arenas(Sandy-bay,) and having anchored in Sandy-bay on the morning of the 8th inst., I landed with Mr. Barrowman, second engineer of the *Samson*, and proceeded to the first vein, about seven miles distant from the bay, situated on the north bank of the river Punta Arenas, 40 or 50 feet above the level of the river. The vein is 30 to 40 feet in depth, about 20 feet of which could only be got at for the snow; but all that was visible appeared to be clean and of good quality, and may be worked with great ease. The road, as far as the commencement of the first ridge of the hills from the bay, would be about four miles, over a perfect level; the remainder, about three miles, is over several ridges of hills, and when it reaches as high as the first vein descends over a deep brow to the bed of the river, and is only a footpath. The second vein is a mile inland of the first, and the third a mile and a half inland of the second, and were entirely covered with snow, and cannot be got at until the summer is more advanced; they are represented to be quite as good as the first vein, and also close to the level of the river. Having secured specimens of the first vein, and finding the principle difficulty that would attend the working of the mines would be the want of a good road, I returned to the shore by the bed of the river to ascertain how far it might be practicable to take advantage of its level to construct a road, to avoid that part of the present one which ascends the hill; and, although I found the river very tortuous, I saw no great diffi-

culty in forming a road on its banks to join that of the plain, there being abundance of material, wood, aad stone on the spot, some of the trees measuring 3 or 4 fathoms in girth. The bed of the river is filled with pieces of good coal, which must have fallen from the veins of its banks; and as these deposits are numerous. it may be assumed there is plenty of coal in the neighborhood. I observed, also, indications of metallic substances at the bottom of several tributary rills and rivulets falling into its course, The veins have not been worked, nor are there any appearances of their being so, by the Chili Government, which has only established Punta Arenas as an outpost, under the command of a lieutenant and a small detachment, as a matter of occupation. No reliance can be placed on a supply of coal there until a road is constructed, and the means of transport from the mines to the bay secured, as it was only with great difficulty I reached the first vein by the hill road, which was deeply covered with snow. I shall leave specimens of the coal for your inspection, and herewith inclose you the copy of an extract from Commander Paynter, of the *Gorgon*, to Rear-Admiral Hornby, on the same subject, containing a statement of his having examined Laredo bay, together with Mr. Barrowman's opinion of the coal after experiments on board.

I have, &c.

THOMAS HENDERSON, Captain.

The second report is hardly worth giving entire—the principal facts being, that Commander Paynter, with several officers, explored for three miles round the bay, without the slightest appearance of coal. He was informed, however, that there was coal at Sandy-bay, 80 miles from Port Famine, which lay four or five miles in the interior. The extent was not known, the outcrop only having been seen; and it would be necessary, if steamers were to be supplied, that shafts should be sunk, and the veins worked in a proper manner.

Necessity the Mother of Invention.

The existing commercial and manufacturing depression has, it will be seen, stopped in the bituminous districts about one-fifth, and in the anthracite districts nearly one-half of the furnaces. These disastrous effects have aroused a spirit of inquiry and economy which is daily producing new and most important results. The astonishing increase in the produce of the furnaces in the bituminous districts take its origin from the application of steam and engine power to the production of a continuous stream or pillar of blast, in place of the puffing of the old-fashioned wind bellows; and, further, to a discovery of my highly-valued friend, Anthony Hill, Esq., of the Plymouth Works, Merthyr-Tidvil. It is to the science, energy, and research of this gentleman, that the iron trade is indebted for the practical discovery that the cinders produced in the various stages of converting, in our forges, crude or cast-iron into wrought or mallable iron, were capable of being resmelted and reconverted in the blast furnace, and the iron they contained (amounting to 50, 60, and 70 per cent.) could be profitably extracted from them. These cinders were formerly thrown away as refuse, or used only for the repair of our roads and thoroughfares—they are now eagerly sought after, and purchased at values as high as some of our richest iron ores. To Mr. Hill a debt of public gratitude, and something more, is due, which I should rejoice to see properly acknowledged and paid. Mr. Yates, of Rotherham, Yorkshire, has at his works, at Wingerworth, near Chesterfield, erected blast furnaces of an entirely different construction from those in use in this district, and the plan of which he has patented. They are about 20 feet in height, of of a peculiar shape, and are blown with a soft fan blast. When I visited them, a few months ago, they were working admirably, and producing excellent pig-iron, at the rate of 120 tons and upwards in a week, at each furnace. These furnaces, and their blowing apparatus and appendages, appeared to me so simple and inexpensive of construction, in comparison with the huge piles of masonry and ponderous machinery of our blast furnaces and engines in Wales, that I imagined they would create a perfect revolution in the iron trade. In the anthracite districts of our mineral basin, the improvements effected by the late Mr. Crane, and the application by him of hot blast to the smelting of iron with anthracite coal, were acknowledged, certainly not more gratefully than they deserved to be, by those who are interested in the mineral productions of the anthracite districts, wherein the deposit of ironstone or ore is enormous, but its reduction with its accompanying fuel almost new. The recent improvements of Mr. J. Palmer Budd, adopted at his extensive works at Ystalyfera, near Neath, and patented by him, are worthy of the greatest attention. Mr. Budd, who read an admirable paper, explanatory of his improvements, to the chemical section of the meeting at which my address was delivered, and with the kindest liberality invited the members of the association to visit and inspect his works, has succeeded in economising the use and consumption of an expensive and valuable fuel, and in preserving from positive waste, and applying to profitable use, volumes of heat evolved in the process of smelting, heretofore allowed to escape, productive of no use whatever.—*Speech of T. W. Booker, at Swansea.*

Extracts from English Railway Journals.

The London Railway Record, of January 27th and February 3, contain a notice of an interesting pamphlet issued by Mr. R. N. Martin, an author distinguished for many valuable statistical works, under the title of "Railways, past, present and prospective." From this it appears that with the exception of the years 1802, 1809, 1811, 1812 and 1824, (in every one of which two acts were granted) only *one* such enactment was sanctioned. From 1825 to 1833, the number varied from 5 to 11 per annum;—from 1834 to 1843, the number ranged from 10 to 21—with the exception of 1836, when it was 35—whereas, in 1843 the number had risen to 48; in 1845, to 120; in 1846, to 227; and in 1847 to 296!—The number for last session is not stated; but, as our readers are aware, it was comparatively inconsiderable.

Of the Liverpool and Manchester railway—the pioneer of all the rest—some interesting particulars are presented. "One eminent engineer" calculated that the crossing of Chat Moss—a length of four miles—would cost £227,000, the actual cost being £40,000. On this, then the only passenger rail in the kingdom, the number of travellers was in 1832, 356,945; increased in 1845 to 473,847; whereas "now (says the author) the passenger traffic in the United Kingdom numbers more than fifty-two millions a year."

The effect of the successful establishment of the original lines naturally led to the formation of others. The story has often been told, but Mr. Martin puts the result into small compass. He says:

"The successful establishment of the great lines between London and the North of England led, in 1835-6-7, to a 'railway mania;' numerous schemes were started, and the country was mapped out with projected lines. In 1837, however, the restrictions imposed by parliament on the facility for obtaining acts checked the speculative fever, caused an abandonment of many projects, and even prevented the further prosecution of lines already begun. Altho' more than 50 new lines, comprising 1,600 miles, were sanctioned in 1835-6-7, only five new lines, comprising 92 miles, were sanctioned in 1838, and 1839.

"No new line was sanctioned by parliament in 1840; in 1841 only a branch passenger line of 5¼ miles to Hertford and Ware; and in 1842 but three new lines were authorised, none of them of considerable magnitude; 1843 produced but few acts for original or branch lines; but in 1844 parliament sanctioned 26 lines, branches and extensions, extending over a distance of 797 miles, requiring a share capital of £11,121,000, and with a power to borrow £3,672,994.

"The principle of competing lines was now, for the first time, acknowledged by parliament by the sanction of *two* lines to Ashton; one by the 'Manchester and Leeds railway company,' and the other by the 'Sheffield and Manchester railway company,' although the distance was only 6¼ miles.

"In 1845, the want of any fixed principles in the legislature increased the evil to so great a length that 225 bills relating to railways were introduced; of these 120 acts were passed, and 105 either rejected, withdrawn or postponed to next session. Of the 120 acts passed, 107 related to the construction of new lines, and provided for making 2883 miles of new railway, and required a creation of new share capital to the amount of £43,844,907."

Upon the author's statistics bearing on the amount of capital expended on railway works, we need not dwell farther, than to say that according to his calculations, based on returns to the House of Lords, "it appears that, at the close of the year 1847, £166,938,241 had been actually expended on railways; and in 1848 the railway calls amounted to £33,246,484, showing (exclusively of depentures issued during the year) a total expenditure of £200,184,725." In Ireland, 261 miles of railway have cost £8,260,492., namely, £6,731,250 received by calls, and £1,520,242 on loan.

Passing over some interesting matter as to the progress of the railway system, in which especially reference is made to the "Clearing House," the origin of which Mr. Martin very truly attributes to Mr. K. Morrison, the present manager of the establishment, and Mr. Robert Stephenson, we come to the chapter on the "Advantages of Railways, Mercantile and Agricultural." On this point, a brief extract from the work itself will suffice:—

"The advantages of railways to the internal commerce of the kingdom are incalculable. The time occupied for the transit of goods between Manchester and Liverpool, before the establishment of a railway, was 36 hours; but they were sometimes a month on the road, and the cost was 15s. a ton; now they are conveyed with certainty in two hours, for 7s. a ton. Between Manchester and London the charge was 70s. to 80s. a ton, and they were several days on the road; now they are conveyed in a few hours for half the amount. The canals have been obliged to reduce their fares; in some cases they have been lowered from 33s. to 4s. Goods are now conveyed from Manchester through Liverpool or London to America, in less time and at less cost than they would formerly have been conveyed from Manchester to Liverpool.

"The charge for goods by waggon was, until the establishment of railways, as much as 1s. a ton per mile, at an ordinary speed of 2 to 2½ miles per hour, and by canals from 6d. to 1s. per ton at a less speed, and delayed during winter for weeks. Now the 'London and North-Western Railway' carry bale goods at 2d. a ton at a speed of 20 miles an hour. In fuel the advantages have been enormous; the price has been greatly reduced to the poor in inland districts, and is not higher in winter, when most wanted, than in summer; rail trucks are not stopped by frosts like canal boats. The farmers have benefitted by the cheap conveyance of manures, of limestone, chalk, &c., and by the carriage of their livestock, grain, &c., to good though distant market towns."

"Railways have not received any grant of monopoly. If the Government had shut up the 'Queen's highways,' forbidden all coach or horse or steam carriage traffic on those highways, closed all canals, or stopped all river barges or coasters; then indeed railways would have received a monopoly. But they have been subjected to all possible opposition, and, notwithstanding their costly construction and expensive working, they have, by fair competition, by superior accommodation, greater safety, and lower charges, drawn to themselves the largest part of the traffic of the kingdom; but this is not monopoly."

The question of "Compensation," both for land taken and injury sustained by passengers, is next handled—Mr. Martin, in respect of the latter, upholding precisely the views which are expressed in

another article of our paper to-day; and, in respect of landowners, stating, most truly, that nnmerous instances could be quoted where Companies have paid for a small portion more than the actual value of an entire property; and that the introduction of a railway, so far from being an injury, has subsequently been held forth as one of the great allurements in the sale of an estate.

In respect of the defective, vacillating, and expensive legislation, of which Railway Companies have been the victims, Mr. Martin gives some curious particulars. He says:—

"In 1830 Parliament refused even a hearing to the parties from Liverpool who desired to make a railway to Birmingham and London, because out of 200 parishes the name of a constable-wick had been omitted from the notice. An omission as to the height of a bridge was deemed a sufficient cause for throwing out a bill, no matter what expense had been incurred. One hundred witnesses have been kept waiting in town for three weeks, at an expense of £1,000 a day, while parliamentary committees were passing through the most unmeaning forms, or trifling in a manner worse than childish. The mistake of a No. 68 for a 69 in marking a field on a plan has been reported as a breach of the standing orders. A field, stated to be in parish A, was found to be partly in township B—reported as a breach of the standing orders. An error in the height of a railway over an abandoned watercourse was fatal to the bill. A bill, on which £100,000 had been spent, was rejected without the least inquiry into its merits, because there was some omissions in half a million figures, and other trifling errata. Another bill of great importance was rejected because a barn, not worth £5, had not been described on a separate enlarged plan."

So, too, in the case of the Great Western Railway, debated for fifty-seven days in the Commons, but thrown out in the Lords wiihout n hearing, and the memorable Railway contests of the Brighton Company, at a cost, for a considerable time, of about £1,000 a day! The Hastings and Harwich, and other schemes, are also adduced in proof of the inconsistent and unjust course pursued in railway legislation. Then also as to land and law costs, the preliminary charges on the Eastern Counties' line being at the rate of £1,800 per mile, while on the Chester and Holyhead, land which before had never let for more than 10s. an acre, sold for £1,500 an acre. Facts of this character are given in abundance, and might easily be multiplied, but we have not room for further details.

Mr. Martin is not an advocate for Government interference with railways. He says:—

"Under a free constitutional Government like ours, it is a general axiom, that the less either the executive ministers of the crown or the Legislature interfere with the internal affairs of the kingdom, except in matters of police and the enactment of laws, the better for the community.

"To place the great thoroughfares of the nation under the supreme direction of the executive Government, would be nearly as bad as leaving the supply of water, food, and light to the authorities. The nation would become helpless, its individual and combinative action would rapidly diminish, and people, instead of relying on their industry and intelligence, would look to everything being done by Government.

"On the whole, therefore, the evils which we have to deplore are not unmixed with countervailing advantages. Full scope has been given to the extraordinary talents and energies of those able men, to whom this country owes the present wonderful inland communications, surpassing in efficiency and convenience those of any other nation; whilst it must not be forgotten, that it would have been a dangerous policy to have placed the control of such a vast interest, and such an extensive patronage, in the hands of any executive government."

Railroad Items.

Among the internal improvement acts passed at the late session of the North Carolina Legislature are the following:

The North Carolina Central Railroad.—The bill to incorporate this important railroad company, which passed the House of Commons on the 18th ult., by 59 to 53, passed in the Senate to its third reading on the 20th ult., by 22 to 19. Its capital is $3,000,000, of which individuals are required to subscribe $1,000,000, and the State $2,000,000.—The main stem is to run through Raleigh and Salisbury to Charlotte, after intersecting the Wilmington and Weldon Road near Goldsboro'.

An act for the relief of the Wilmington and Raleigh Railroad Company; which empowers the company to mortgage the road and its appurtenances to the amount of $620,000, for the purchase of iron to relay the track, giving to the mortgage to be so created precedence over the State's mortgage. The act also extends the time for the payment of the company's bonds to the State for $300,000, for money borrowed, to ten years on each bond as it falls due.

The Columbus and Xenia Railroad, it is expected, will be prepared for the superstructure in July next, and will be ready for the running of the cars in October following. It is the intention of the company at once to lay down a heavy T rail; this is as it should be, as it is bad to use a flat bar. This road, when finished, will open a direct railroad communication between Columbus, the seat of government of Ohio, and its great mercantile metropolis, Cincinnati. It will also form an important link in the railroad connection between Cincinnati and Lake Erie at Cleveland, uniting, as it does, at Columbus, with the Cleveland and Columbus road. The advantageous location of this road, its connections with other channels of trade, the present low prices of iron and cheapness of preparing the track for the iron, can hardly fail to render it very productive property.

Ohio and Pennsylvania Railroad.—At a meeting of this Company, held in Pittsburgh on the 18th inst., an election was held for officers, which resulted as follows:

President—William Robinson, Jr., of Allegheny City.

Directors—Thomas Bakewell, of Pittsburgh; Ovid Pinney, of Beaver; Zadock Street, of Salem; Hiram B. Wellman, of Massilon, John Larwill, or Wooster, and Charles T. Sherman, of Mansfield.

A public meeting in favor of the road was held on the 17th inst. The meeting was addressed at length by Solomon W. Roberts, Chief Engineer of the Company, in explanation of the results of the surveys and the prospects of the work. It was shown on the maps that this road, with its extensions, will be the shortest and best line from Pittsburgh for Cleveland, Sandusky City, Toledo, and Chicago; and also the best for a connection with St. Louis. The distance from Pittsburgh to Cincinnati will be 330 miles, by the way of Massilon, Wooster, Mount Vernon, and Columbus; avoiding interference with navigable communications, and passing through the richest and most populous parts of Ohio.

The Chambersburg Whig of the 1st inst. bears the following testimony to the importance of the enterprise which is now being presented to the favorable consideration of the people of Baltimore:

The York and Cumberland Railroad.—The citizens of Baltimore are displaying a new and encouraging spirit in behalf of this improvement. Already renowned for her liberality towards such enterprises that city is striving to raise within herself the greater part if not all the money that may be necessary to complete this important road.

To her indeed it is important—more so than any similar project that is now addressing public attention. Forming as it will a connection with the great central high ways of Pennsylvania, a large proportion of the trade as well, probably, as of the travel upon those routes must be attracted to her market. It will thus make both the canal and central railroad of this State tributary so her commerce and wealth, and as her markets are usually of a higher grade for much of the produce of the country she will be likely to receive more than an equal share of the profits of that trade.

The road when constructed will also throw ir to Baltimore a large proportion of the agricultural and mineral products of this and the adjoining county of Cumberland. A great deal of these already seek that market, notwithstanding the slow and lumbering transportation by tide water and turnpikes; and it may be reasonably calculated that this trade will be immensely augmented when it can be forwarded with the speed and safety of steam power. This road will offer to our citizens the choice of two markets for their saleable commodities—Philadelphia and Baltimore. The former they have already, but under a rate of fare that is hardly low enough to compete with the turnpike gates. This new outlet to the rival city will in all likelihood be the means of reducing the charges upon the other route to what a fair competion for the business may make necessary.

New Haven and Northampton Co.—The annual meeting of the New Haven and Northampton Co., was held on the 17th inst., and the following persons were chosen Directors for the ensuing year: Joseph E. Sheffield, Harvey S. Hoadley, Henry Whitney, and Wm. W. Boardman of New Haven; and Governeur Morris of New York. The New Haven Register says the company have decided to extend their road to Springfield, which they will do with all possible despatch.

Chesapeake and Ohio Canal.—We learn from the Alexandria Gazette that "the toll on Coal from Cumberland, upon the Chesapeake and Ohio Canal, has been reduced by the Board of Directors, to 76 cents per ton for the entire length of the Canal."

A large meeting was held on the 30th December last at Mount Holly, N. J., of the citizens of Burlington county, and others friendly to the construction of a Railroad across the State of New Jersey. This is a movement distinct from the Camden and Amboy Company.

The Michigan Central Railroad, we learn from the Detroit Free Press, is advanoing steadily on the line west of Niles, and will be finished by the first of May, so that the shores of Lake Michigan and the Detroit River will be united by iron bonds, and the iron horse snorting along with cars loaded at New Buffalo.

The Vincennes Railroad Bill has been defeated in the Illinois House of Representatives; for it, 37; against it, 33; within one of a constitutional majority. The Senate have a general bill which will defeat every railroad in the State. So says a despatch to the Union.

The Marblehead Mercury states that the Eastern Railroad Corporation have asked from the relatives of those who were killed on that road by the collision last November, to bring in sealed proposals, setting a price on their lives. Not over $5,000 can be recovered by the relatives of any person killed on any railroad in the State of Massachusetts.

Education of Engineers.

The study of engineering presents peculiar difficulties; not from the paucity of information, but from the multiplicity of its sources, which are so many and so widely separated, that the student may well be bewildered and discouraged when presented with a map of his future course. Let us consider a few of the branches of knowledge with which he must be adequately acquainted before he can be said to have mastered the whole of the principles of his profession.

As a large part of his business consists in adapting mineral products to useful purposes, he must be acquainted with the mechanical and chemical properties of minerals, and must be able to distinguish good metal from bad, sound building materials from those which are perishable, &c. He must, therefore, be acquainted with the science of MINERALOGY—or, at least, that part of it which is susceptible of practical application. The changes which in the progress of time are wrought in those minerals by affecting their molecular or cystalline structure, the value of different methods of working them, the chemical changes wrought by the atmosphere, and the action of foreign substances, are considerations which render indispensable an adequate knowledge of CHEMESTRY. The engineer employed in constructing railways, roads, canals, and harbors, must certainly be acquainted with GE-

ology; for how shall he estimate beforehand the probable cost of his works, their permanency, or the most judicious mode of carring them on, unless he know the nature of the soils in which he will have to operate, the order of their succession, their relative depths, and stratification? To estimate the proper form and dimesions of the structures which form part of his works, he must be thoroughly versed in the science of Statics To determine the most effective agents of mechanical power, and the most economical methods of producing and regulating motion, the knowledge of Dynatics will be required. The operation of the steam-engine, atmospheric railways, the air-pump, the ventilatton of mines, &c., are te be nnderstood only by the investigation of the principles of elastic fluids—Pneumatics. The sciences of inelastic fluids—Hydrostatics and Hydraulics, are essential in constructing sea-walls, breakwaters, canals, and docks, in ascertaining the power of water-mills and hydrostatic-engines, in works of drainage and water supply, and in naval architecture.

The sciences already enumerated by no means exhaust the list included in the engineer's *curriculum*. Most of them involve a knowledge of Mathematics, and some of them of its highest branches—in dynamics, for instance, the processes of the Differential Calculus are involved at every step. Mathematical knowledge will, moreover, be required in a most important branch of the engineer's occupation—surveying, and the measurement of works. To lay down the course of a railwey or estimate the cubic contents of an embarkment, would be impossible without some knowledge of Trigonometrq and Solid Geometry.

The institution of colleges expressly intended for the scientific education of young engineers, is an ample evidence of the general recognition of the abstract sciences for practical purposes. There are now three colleges in London, or its vicinity—King College, University College, and the College of Civil Engineers, at Putney, in which a course of study is adopted for the especial purpose of preparation for the practice of civil engineering. In estimating the value of such institutions, it should be carefully remembered that the knowledge of the engineer is of two kinds—scientific and practical knowledge. The former may be acquired from books in the laboratory or college lecture-room—the latter is to be obtained in the workshop, or the canal or railway works.

The substitution of certainty for conjecture, or demonstration for hazardous and imperfect analogies—These, in fact, are the objects of colleges of civil engineering. The details of the courses of lectures may differ in each, but to all of these institutions may be applied the words of a printed statement respecting the Putney College, in which it is said that "the foundation of the system is laid in a knowledge of the exact sciences and properties of matters—*i. e.*, upon mathematics and chemestry." The mathematieal course includes, among the sciences above referred to, as forming a necessary part of the education of the engineer, Geometry, Analysis, (including the Differential and Integral Calculus), Statics, Dynamics, and Hydraulics. Fortunately—most fortunately—in all three colleges, the Mathematical lectures are delivered by *mathematicians*, not by mathematical pretenders, whose acquirements consist in a certain impudent dexterity in dazzling the eyes of those who are more ignorant than themselves, by a display of mathematical jargon. The practical classes of Chemestry afford the student the opportunity of analysing and assaying minerals by direct manipulation. The lectures on Geology include the practical application of the science to architecture, marine engineering, and mining; there are also lectures on civil engineering, machinery, mechanical drawing, &c. We will not venture to assert that this course of instruetion altogether supersedes the necessity of further pupilage in the office of a civil engineer; on the contrary, the student is strongly urged to avail himself of that advantage, for without it he never will be fit to cope with any work of magnitude.

We cannot close this account without referring to an incidental advantage of these colleges, in promoting the improvement of engineering literature. For the wretchedly inacurate works which are palmed on the practical mechanic a few years ago, we have new and admirable treatices on the various applications of the sciences, by Mr. Hodgkinson at University College, Professor Moseley and Mr. Hann at Kings College, and of the Putney lecturers, by Professor Ansted, Dr. Lyon Playfair, Professor Davies, &c. It is also gratifying to add to this list, the name of Mr. Cowie, as he has announced the publication of his lectures on Hydraulics, combining his own researches with the results of the eminent continental writers on the subject. The *vexatæ questiones* of hydraulics are so many and so perplexing, that this work can scarcely fail of rendering important service to science. Truly the labors of such men are wanted to bring the engineering literature of this country up to the same standard which in France the splendid investigations of Poncelet, Navier and others scarcely less illustrious, have attained.

Submarine Telegraphic Communication with France.

Some interesting experiments were made on Wednesday the 10th ult. at Folkestone, as to the practacability of carrying electric lines of communication over great widths of sea channel. The experiments were conducted under the direction of Mr. Walker, superintendent of the telegraphic system of the South-Eastern Company. They were undertaken to test the possibility of establishing an electro-telegraphic communication with France, by a wire carried over the Straits of Dover; and it was intended to have taken the wire two miles out to sea, on board the *Princess Clementine* steamer, (one of the company's ships), uncoiling and dropping it in the water as she proceeded. The night previous, however, had given token of breezy weather, and on the morning of Wednesday the wind was high; and the waters of the channel being agitated by a considerable swell, it was feared the vessel would roll and toss to such an extent, as to prevent the proper management of the instruments, or keep the needles in their necessary vertical position. It was therefore decided on to pay out 3,600 ft. of insula ted wire along the harbor and the side of the pter—one end being connected with the telegraphic arrangements at the Folkstone station, thus being in direct communication with London, and the other attached to an instrument on board the *Clementine*, at anchor in the harbor. All the arrangements having been completed by half-past 12 o'clock, a message was sent to London, to apprise that all was in rediness, [after whtch a continuous correspondence was kept up between the *Clementine* and the stations of London, Ashford, Tunbridge, and Folkstone. At four o'clock the submerged wire was drawn in and coiled up, and was found not to have sustained the slightest injury. The experiments were, it is stated, in every respect highly successful; the length of wire in the sea forming apparently not the slightest impediment to the perfect and free transit of the galvanic current.

The wire employed was not made expressly for the occasion, but had been constructed for the Merstram Tunnel, where it was found that not only the damp on the wires affected the galvantc current, but was still further interrupted by the steam from the engines, impregnated with acid and earthy matters. Its size is No. 16 copper wire, covered to a thickness of about a quarter inch diameter with gutta-percha, under a patent by Mr. Foster, of the gutta-percha manufactory, Streatham, and similar wires will in future be employed in all the tunnels on the lines, which places have been found to cause the only obstructions which present themselves to the free working of the system.

The telegraphic instrument employed was one constructed by Mr. Walker, on a plan to avoid any action from atmospheric electricity. The galvanic coils are mounted on wheels, and the needle is brought to a perpendicular with the greatest facility by turning a stud, which causes the coil to pass in a direction opposite to that to which the needles had been deflected. The conductor for the atmospheric electricity consists of a vertical wire, furnished with radiating points, and a bobbin of wire of a much finer texture than any other in the instrument. This is surrounded by a small brass cylender, connected with the earth, and any overcharge of electricity burns the fine wire and escapes. This occurred in one instance at Tunbridge Wells, during a thunnderstorm, a short time since.

Suspension Bridge at Pesth.

The bridge which is erected over the Danube at Pesth, was commenced in 1840, according to the designs and under the direction of William Tenney Clark, civil engineer, and has just been completed at a cost of £650,000. This bridge, which for magnitude of design, and beauty of proportions, stands first among suspension bridges, has a clear waterway of 1250 feet, the centre span or opening being 670 feet. The height of the suspension towers from the foundation is 200 feet, being founded in 50 feet of water. The sectional arc of the suspending chain is 520 square inches of wrought iron, and the total weight of the same 1300 tons. This is the first permanent bridge since the time of the Romans which has been erected over the Danube below Vienna, it having been considered impossible to fix the foundations in so rapid a river, subject to such extensive floods, and exposed to the enormous force of the ice in the winter season. It now, however, stands as another monument of the skill and perseverance of our countrymen, The bridge was opened for the first time, not to an ordinary public, but to a retreating army, on the 5th of January, 1849, by which the stability of the structure was put to the most severe test, which cannot be better described than by referring to the letter of a correspondent, who writes—"First come the Hungarians, in full retreat and in the greatest disorder, hotly pursued by the Imperialists; squadrons of cavalry and artillery in full gallop, backed by thousands of infantry—in fact, the whole platform one mass of moving soldiers; and, during the first two days, 60,000 Imperial troops, with 270 pieces of cannon, passed over the bridge." This fact cannot but be of importance to the scientific world, since it proves that suspension bridges, when properly constructed, and trussed according to the design of Mr. Clarke, may be erected in the most exposed places, while their cost, in comparison witn stone bridges, is comparatively insignificant.—*Times.*

Railroads Opened in 1849.

Portland and Montreal (Me)	8 miles.
Sullivan (N. H.)	26
Cheshire (N. H.)	10
Vermont Central	17
Vermont and Massachusetts (Mass)	21
Connecticut River (Mass.)	16
Camden Branch (S. C.)	21
	119 miles.
Roads opened Jan. 1, 1849	6421
Total	6540 miles

of railway in operation in the United States on the 1st day of March, 1849.

Restrictive Legislation.

We see by an exchange paper that a bill has passed one branch of the Pennsylvania Legislature, to repeal the charter of the Erie and Ohio Railroad, for the avowed object of cutting off communication between the Ohio Road and those of the State of New York, and compelling western trade and travel to pass over her own works. Admitting it to be legally competent for the State to repeal this charter, we protest against the exercise of powers for similar object, by any of the State. The very object of the union was to protect the several States from the partial legislation of any of their members for the purpose of benefitting themselves at the expense of others; and we deny the right of any to impose either directly or indirectly, any burdens upon the citizens of any other States, as a tax for the privilege of passing through it. The exercise of such a power would at once put an end to our whole system of internal improvements, and would array the several States of the Union in hostile attitude to each other, and would be equivalent to disunion itself. If a State is so situated that she cannot attract the trade of other States to it, it is her misfortune, for which, other States should not suffer; their citizens have a perfect right to go where they please

and trade where they please. The trade of different sections of the country is the legitimate object for the effect of all the States, and these will secure it, who can offer the greatest inducements. Efforts to divert it from its legitimate channels can never in the end be successful. The legislature of any State must yield in time to the influence of public opinion. So that all advantage gained by partial legislation is temporary, and consequently injury in the end. Pennsylvania is the last State in the Union that should resort to such means, as her position is peculiarly favorable to secure a large portion of western trade, and she can well afford to let business take its natural channels.

AMERICAN RAILROAD JOURNAL.

Saturday, March 3, 1849.

Ocean Steam Navigation.

Foreign Travel.

In our last paper we alluded very briefly to the rapid development of the spirit of enterprize in the rapid growth of the steam vessels for Ocean Navigation, and spoke of the effect it was likely to have on the business and travel, when the new facilities now in progress shall come fairly into play. The last arrival from Europe brought us in, confirmation of the views then presented, notice of a scheme in progress at Glagow, to establish a new line of steamers direct with New York, from that city. We hear also of further movements at home in the same general direction.

A few years ago the scientific world yielded their general assent to the truth of the assertion of Dr. Lardner, that the proposition for navigating the Atlantic Ocean by steam was an absurdity. The problem was solved by the arrival of the steam ships *Sirius* and *Great Western*, on the 23d day of April, 1838, both on the same day, in New York harbor.

We now have a semi-monthly line in winter, and a weekly line in summer, between this continent and Liverpool, in the *British and North American Royal Mail Steam Ships*,, known as *Counrads* line, consisting of eight in all, reaching alternately New York and Boston. There is also the *Sarah Sands*, a regular packet steamer between Liverpool and this city.

The *Southampton & Bremen line*, consisting of the *Hermann* and the *Washington*, is so successful that a new line is to be established between New York and Havre, touching at Southampton, taking the place of the *United States*, recently disposed of to the government of Prussia.

E, K. Collins, New York and Liverpool line, to cousist of *five* new steamers, including the Atlantic and the Pacific, with *three* new ones of the Glasgow line, will complete a list of *twenty one* steamers running across the Atlantic Ocean, *direct*, between the two continents. New projects will not be long in ripening, which will soon secure direct lines of steam packets between the principal cities of the old world and the new.

The lines of railway on each continent are progressing with still greater rapidity, and the traveller from the Old World, in visiting the New, will soon find the same facilities of travel as are now being opened to us on the Continent of Europe.

Great Britain has for years been covered with railway lines. On the Continent of Europe the progress of railways is opening its whole surface to the man of commerce and the pleasure tourist. At the time when these facilities have just been entered upon by the merchants of New York in our midst, the railway lines have just been connected; and from the shore of the British Channel, at Calais & Boulogne, the lines of railway have recently been opened "right through the very heart of Europe, embracing in its course the great capitals of the North, and at the same time opening up the means of communication with the various continental nations of the South."

Supposing the increase of speed in the new steamers in Collins' Line be equal to their increased superiority over any other vessels afloat, we may safely calculate on a passags to Liverpool in ten, or at all events in twelve, days from New York or Boston. A traveller may then go to London by railway, 200 miles in 5 hours; from London to Folkestone, 83 miles, in 2¼ hours; from Folkestone to Boulogne, by packet, 26 miles, in 2 hours; from Boulogne to Paris, 170 miles, in 6¼ hours; from Paris to Brussels, 231 miles, in 11 hours; from Paris to the Rhine, 529 miles, in 43 hours; from Paris to Leipsic, 757 miles, in 67 hours; from Paris to Warsaw, 1,263 miles, in 114 hours.

Including all detentions, a person may now go from New York to Warsaw, in Poland, the termination, for the present, of the Great Northern Line, in twenty days, or in less time than it took in Franklin's time to go from Boston to Washington and return.

From London to Berlin, under the present system of things, it is arranged that there need be no delays on account of political surveillance, and nothing to interrupt one's progress except the ordinary station stoppages upon the line.

From Berlin South, the line will soon be completed to Vienna, to Switzerland, and eventually to Venice, and to Rome. Crossing the Alps, a traveller may soon find himself again in Paris, at Boulogne, and at London. At London he may book himself at Euston Square, for Glasgow, 390 miles distant, or for Edinburgh, 426 miles, or for Perth, 450 miles; and never change his carriage till he is in the latter city.

After viewing Melrose Abbey, Abbotsford, and Ben Lomond, he may take the Railway at Perth, Arbroath, or Forfar for Glasgow, or one of the four regular trains between Edinburgh and Glasgow, proceed on to Liverpool, or take a Glasgow packet for New York, and return to his own home in this city in 45 days time, having visited all the places named.

All this, and much more, will be accomplished within two years. The man of taste and business will of course regard this as merely the outline of a route requiring long rests at various points, for investigation and repose. We are speaking of the possible for the man of business and despatch.

From this state of things, the most extraordinary results are to follow. A passage to Europe will, in two or three years time, cost less than one-half the present amount required. People of different lands will visit each other more and more. The exchange of ideas will reciprocally act upon the people of different nations. The various languages now pervalent will gradually assimilate; opinion will grow into harmony, and the nations of the earth shall make war no more; but Liberty, Equality, and Fraternity become roads of life and meaning.

Railroad from New York to Burlington, Vt.

We now have a line of Railway from New York to Albany, by the way of the New Haven and the Housatonic Railroads. In the course of two years from this date, the Hudson River Railroad is expected to be opened. The Harlem Railroad will, in due time, be finished.

The distance to Albany, by the Hudson River Road is	142 miles.
Greenbush to Troy	6
Troy to Saratoga	31
Saratoga to Whitehall	40
Whitehall to Rutland	24
Rutland to Burlington	65
Total	308 miles.

The entire line is finished, or in a fair way towards completion, except the short distance of 24 miles betwen Whitehall and Rutland. This line should be finished as soon as the road from Rutland to Burlington is open.

The best route to Montreal is now by the way of Boston and Montpelier, a distance of some 400 miles, or by the Worcester and Nashua. The Cheshire and Central Roads, a trifle less in distance only.

Are the New York merchants aware of the importance of filling up this gap from Rutland to Whitehall. It will secure to this route the entire Canadian travel between Montreal and New York.

It will make the connection complete with all the roads to be extended from Burlington towards the Canada line and Ogdensburgh.

Cleveland and Pittsburg Road.

We have just received the report of the Chief Engineer and Directors of this Road, which is to connect the above cities, running through Ravenna and Wellsville, on the Ohio River. The whole distance between Wellsville and Cleveland has been located, and 50¼ miles have been placed under contract, and the remainder will probably be put under contract in a few months. The following is an estimate of the cost of the road from Cleveland to Wellsville:—

Graduation, masonry and bridging	$581,320 49
Superstructure, and Rail weighing 75 lbs. per yard	919,780 98
Land damages	30,000 00
Cattle guards	8,000 00
6 miles of Turn-outs	72,000 00
Road and farm Crossing	7,600 00
Add 8 per cent. for contingencies, engineering, and superintendence	129,496 43
	$1,748,201 90
Estimated cost of depots, engine and car houses, locomotives, &c.	328,000 00
	$2,076,261 90

The maximum grades are 50 feet to the mile for four and two-third mile; on all the rest of the line the grades do not exceed forty feet to the mile. The minimum cases have a radius of 1,200 feet.

	Miles.	Feet.
Distance from Pittsburg to State line	39	1,620
" State Line to Wellsvilee.	8	360
" Wellsville to Passenger Depot at Cleveland	98	960
" Pass'r. Depot to the Pier.	1	3,720
	147	1,380

The surface of Lake Erie at Cleveland is 76 feet lower than the surface of low water in the Ohio at Wellsville.

We have not room to copy the estimates of the business of this road, which are given at length in the above report. As the road is to cost, according to the estimates, but about $20,000 per mile, and passes through the oldest settled portion of Ohio, through a fertile and densely populated country, abounding in coal and iron, and connects Cleveland with the public works of Pennsylvania by the short-

est feasible route, and can have no rival road for many years to come, we think that these facts are sufficient proof that the route will be good property to its stockholders, as well as advantageous to the public. Its completion will add much to the value of the railways and canals that connect, or that are designed to connect, the Atlantic and the waters of the Ohio.

MISSOURI.

Lexington and Mississippi Railroad.

A Bill to incorporate a Road from Lexington, on the Upper Missouri, to some point on the Mississippi, to be fixed by Commissioners appointed by the State. has passed the Legislature. The State has also appropriated $10,000 for a survey, upon certain condition. Efforts were made to cause the road to terminate at New Madrid, Ohio city, commerce, and other points, which were rejected.

Mobile and Ohio Railroad.

We are gratified to learn, from our southwestern exchanges, that there hardly remains a doubt now that the great project of constructing a railway from the head of the Mobile Bay to the first high land on the Mississippi River below the mouth of the Ohio, will be carried through, without any unusual delay. Four parties, it is stated. are now engaged in the preliminary survey of the route. The first division commenced operations at Mobile, the southern terminus. The second, a hundred miles north on the route. The third, started from Jacksonville, one hundred miles yet higher up the route, and on the Tennessee River, to meet the second division. The fourth, started from Columbus, Ky., about fifteen miles below Cairo, to continue to Jacksonville.

The stock is not yet all taken, but the people of Mobile, and along the line on the road, intend to secure enough among themselves to grade the route and lay the timbers—reasoning correctly, if they do this, that the capitalists of the east will furnish the means of building the superstructure.

The Mobile and Ohio Railroad will probably be the first section completed, in that great commercial channel whose iron track is to stretch from the Ohio River at Cincinnati, *via* St. Louis, to the waters of the Gulf of Mobile.

Progress of the Western and Atlantic Railroad.

The Chattanooga Gazette of the 26th ult. says:—Notwithstanding the very unfavorable weather for the last month or two, we are pleased to witness and to learn that the enterprising Contractors on the W. and A. Rail Road are pushing forward the work with an energy and perseverance, that gives an ernest that it will be completed by the next fall. By a gentleman just in from the Tunnel, we are informed that they have penetrated the ridge on the south side about 320 feet, and the north side about 200 feet. This, considering the unfavorable season, and the difficulty in obtaining suitable hands, and getting under head way, is pretty fair work. There remains nearly 900 feet to be tunneled. The opening of good weather, and the more complete arrangements for the work, will enable the Contractors to push it forward more rapidly, and we are led to believe that daylight will be seen through it by the next Independence day, or in a few weeks after. The Tunnel is the main obstacle in the way of running the cars to Chattanooga by the 1st of October. On all the rest of the unfinished part of the road, the work will be easily finished in time.

The Lexington and Frankfort, Ky., R. R. is expected to be completed by the 1st of September next.

The Louisa Railroad extension, of 27 miles, terminating at the Dock in Richmond, will probably be finished by the end of the year, as the grading is very light, and there is a large force at work on the line.

Connecticut River Railroad.

This road extends from Springfield, Mass., to the line of Vermont, 52 miles, and connects with the Vermont and Massachusetts Railroad, a short distance south of the State Line. From this junction the Vermont and Massachusetts Road extends to Brattleboro.

It only requires 22½ miles more of railway between Brattleboro and Bellows Falls to complete the line from Wells River, Vt., to the city of New York.

New York to New Haven	76 miles.
New Haven ro Springfield	62
Springfield to Brattleboro	62
Brattleboro to Bellows Falls	22½
Bellows Falls to Windsor	26
Windsor to White River	17
White River to Wells River	39½
	305 miles.

If the New Yorkers should look at this matter as the Bostonians would do under such circumstances, the cars would be running between Wells River and Canal street, in this city, before the end of October.

In another column some account will be found of the doings at Brattleboro, in relation to this subject, on the 20th ult.

The annual report of the Connecticut River Railroad states the cost at $1,588,874. The receipts of the year are as follows: From passeners $88,637; freight $71,807; mails, express, &c., $4,798—total $165,242; being an excess of $41,290 over the corresponding year. The expenditures are $79,955, of which $53,558 have been laid out on new engines and cars; leaving a surplus of $86,797 to be divided, after paying interest to the amount of $10,620, and reserving $39,884 for other contingencies, two dividends of 4 per cent. each.

Railways in Canada.

A numerous and highly influential meeting of the friends of Railway enterprise, took place at Donegana's Hotel on Friday evening, the Hon. George Moffatt in the chair. As the subject is one of very great importance to the welfare and advancement of the Province, we propose to give a somewhat full report of what was said at that meeting. Want of time and space compels us, however, to postpone the report until our next issue; in the meantime we give the resolutions—together with the names of the movers and seconders—which were adoped with the utmost unanimity. The following are the resolutions:—

Proposed by G. F. Tiffany, Esq., seconded by Mr. Galt.

Resolved, 1.—That no country can properly develope its various resources, or keep pace with the progress of the age, without the aid of Railways, and that to Canada in particular, on account of her peculiar geographical position and climate, which closes the communications by water for nearly one-half of the year, this description of internal improvement is become absolutely necessary.

Proposed by the Hon. Mr. Ferrier, seconded by Mr. Sheriff Boston.

Resolved, 2.—That the example afforded by those countries in which railways have been most extensively constructed, demonstrates the wisdom of adopting, at the commencement, a general plan or system, by laying down Main Trunks with snitable branches, and extending to such system Legislative aid and protection, until the whole shall be completed; and that, although this Province is far behind many other countries, in the actual construction of this description of internal improvement, yet, by availing ourselves of the experience to be derived from them in laying down such a system, which was overlooked, and is now regretted by them, this country may, in the end, find no cause of regret for the delay.

Proposed by Mr. Sheriff Coffin, seconded by the Hon. Adam Ferrie.

Resolved, 3.—That the general surface of the Province, from Quebec to its Western boundary, presents a most favorable line for such main trunk of railway, being for the most part a gentle inclined plain, unobstructed by any mountain or great elevation to be overcome, and that this main trunk may be so laid down as not to disturb the present business centres throughout the country, or to interfere with its expensive and important canals and water communications, but will be of the highest advantage to them, and that by means of proper branches, such as that part of the St. Lawrence and Atlantic Railroad from Melbourne to the Province Line, and the line from the City of Hamilton to the Suspension Bridge over the Niagara River, full benefit may be derived from the Railways in the United States in our commerce with that country and with the Atlantic seaports at all seasons of the year.

Proposed by Mr. G. E. Cartier, seconded by J. Egan, Esq., M. P. P.

Resolved, 4.—That the necessary funds which will be required to carry out and realize the foregoing plan cannot in all probability be provided without Legislative aid for many years, and in consideration of its importance and necessity to the best interests of the country it is entitled to such aid. That this meeting desire the matter to be brought under the notice of the Legislature, and as it is proper in so doing to suggest some plan by which in the opinion of this meeting the action of the Legislature may be exercised with safety to the credit of the Province, we respectfully beg leave to recommend the following, viz.:—

That a Main or Trunk Line of Railway, with its necessary branches, leading from Quebec to the Western boundary of the Province be adopted and divided into suitable sections, to be taken up by separate companies; that no other line be granted, which will in any degree interfere with any portion of such line and branches, until the whole shall be completed, and as soon as any one of the companies owning any section of such line shall have called in and expended in the construction of their work, the one-third of the estimate expense of the same, such company shall be entitled to claim the credit of the Province, in order to raise the other two-thirds by loan, of the credit so advanced or furnished, together with the interest thereon; and for further security the estimates and expenditure may be made to the satisfaction of competent Engineers appointed by the Government.

Moved by P. E. Leclerc, Esq., seconded by John Torrance, Esq.

Resolved—That the following gentlemen be, and they are hereby, appointed a Committee to carry out the foregoing resolutions, five of whom shall be a quorum:—The Hon. A. N. Morin, M. P. P., Sir Allan MacNab, M. P. P., Hon. James Ferrier, W. F. Coffin, Esq., P. E. Leclerc, Esq., H. Sherwood, Esq., M. P. P., J. Egan, Esq., M. P. P., George Desbarats, Esq. Absalom Shade, Esq., G. S. Tiffiany, Esq., P. J. O. Chaveau, Esq, M. P. P., Hon. J. A. McDonald, —— Cowan, Esq., of Waterloo, and A. T. Gait, Esq.

We have much pleasure in giving a place in our columns to the proceedings of the Railway Meeting held at Donegana's Hotel, on Friday evening, which was numerously attended, not only by some of the most respectable and influential citizens of Montreal, but by many Members of both Houses of the Legislature, some of whom, we perceived, took an active part in the proceedings, thus showing that this most necessary improvement is gaining for itself an influence, and with that portion of the community whose duty it is to lead the impulses of the country in the general improvement necessary to its prosperity. We trust, ere long, that active legislation may be the fruit of this growing interest, and that railway communications may be established throughout the length and breadth of the Province, as fast as prudence may dictate the investment of the necessary capital; and we see no reason for doubting that a trunk line, as contemplated, would

pay more than legal interest, from its sections, as fast as completed.

Having said thus much upon the scheme generally, we may be permitted to remark, that the St. Lawrence and Atlantic Railroad appears to us eminently calculated to lead the van in the development of this or any other railway scheme which may be laid before the country, embracing, as it does, within itself, more capabilities of public utility through its position, than can be afforded by any other line of road in the Province.

It is the shortest line between the St. Lawrence and the Atlantic ocean, and will afford the means of cheap conveyance, open at all seasons of the year, for the produce sent by our Provincial canals to the sea; and without its aid these magnificent works must be imperfect, the climate closing, as it does, the natural access by the river for nearly one-half of the year. It has further the advantage of affording to the city of Quebec an access to the sea, through Melbourne, at nearly the same distance as Montreal, and opens to the two sections of the Province east and west of this city, the means of reaching the markets of the United States at their leading Capitals, or through them of Great Britain and the world at large, at all seasons; and it, no doubt, will form a portion of the Halifax route for seventy miles, should that great enterprise be consummated by the joint efforts of these Colonies.

A road which thus unites within itself the power of subserving so many public interests, and which must be a profitable investment, ought not to be permitted to languish from want of the aid of an enlightened Legislature, particularly when private enterprise has placed its works in a position to offer good security; and it is due to the perseverance, industry, and skill evinced in its execution, that it be supported and sustained.—*Montreal Pilot.*

BUSINESS CARDS.

James Laurie, *Civil Engineer,*
No. 23 Railroad Exchange, Boston, Mass.

Railroad Routes explored and surveyed. Estimates, Plans and Specifications furnished for Dams, Bridges, Wharves, and all Engineering Structures.
October 14, 1848. 6m*

James Herron, *Civil Engineer,*
OF THE UNITED STATES NAVY YARD,
PENSACOLA, FLORIDA.,
PATENTEE OF THE
HERRON RAILWAY TRACK.

Models of this Track, on the most improved plans, may be seen at the Engineer's office of the New York and Erie Railroad.

TO RAILROAD COMPANIES and BUILDERS OF MARINE AND LOCOMOTIVE ENGINES AND BOILERS.

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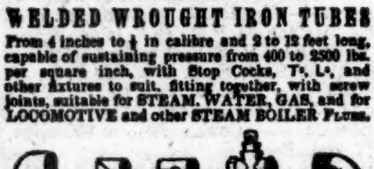
WELDED WROUGHT IRON TUBES

From 4 inches to ¼ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2500 lbs. per square inch, with Stop Cocks, T's, L's, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER Flues.



Manufactured and for sale by
MORRIS, TASKER & MORRIS.
Warehouse S. E. Corner of Third & Walnut Streets,
PHILADELPHIA.

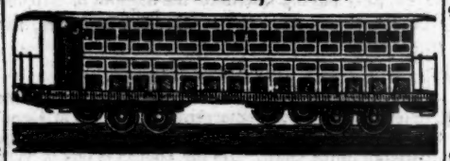
TO LOCOMOTIVE AND MARINE ENGINE Boiler Builders. Pascal Iron Works, Philadelphia. Welded Wrought Iron Flues, suitable for Locomotives, Marine, and other Steam Engine Boilers, from 2 to 5 inches in diameter. Also, Pipes for Gas, Steam and other purposes; extra strong Tube for Hydraulic Presses; hollow Pistons for Pumps of Steam Engines, etc. Manufactured and for sale by
MORRIS, TASKER & MORRIS,
Warehouse S. E. corner 3d and Walnut streets,
Philadelphia.

Direct Action Engines
FOR STEAMBOATS.
THE PATENT DOUBLE CYLINDERS,
AND ALSO
THE ANNULAR RING PISTON ENGINES,
of Messrs. Maudslay, Sons & Field, of London, may be built in the United States, under license, which can be obtained of their agent,
THOMAS PROSSER, C. E.
28 Platt street, New York.
May 6, 1848.

LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 1¼ to 15 inches diameter, and any length not exceeding 17 feet—manufactured by the Caledonian Tube Company, Glasgow, and for sale by
IRVING VAN WART,
12 Platt street, New York.
JOB CUTLER, *Patentee.*
☞ These Tubes are extensively used by the British Government, and by the principal Engineers and Steam Marine and Railway Companies in the Kingdom.

Norwich Car Factory,
NORWICH, CONNECTICUT.
AT the head of navigation on the River *Thames*, and on the line of the *Norwich & Worcester Railroad*, established for the manufactory of
RAILROAD CARS,
OF EVERY DESCRIPTION, VIZ:
PASSENGER, FREIGHT AND HAND CARS,
ALSO, VARIOUS KINDS OF
ENGINE TENDERS AND SNOW PLOUGHS.
TRUCKS, WHEELS & AXLES
Furnished and fitted at short notice.
Orders executed with promptness and despatch.
☞ Any communication addressed to
JAMES D. MOWRY,
General Agent,
Norwich, Conn.,
Will meet with immediate attention. 1y8

CAR MANUFACTORY,
CINCINNATI, OHIO.



KECK & DAVENPORT WOULD RESPECTfully call the attention of Railroad Companies in the West and South to their establishment at Cincinnati. Their facilities for manufacturing are extensive, and the means of transportation to different points speedy and economical. They are prepared to execute to order, on short notice, Eight-Wheeled Passenger Cars of the most superior description. Open and Covered Freight Cars, Four or Eight-Wheel Crank and Lever Hand Cars, Taucks, Wheels and Axles, and Railroad Work generally.
Cincinnatti, Ohio, Oct. 2, 1848. 44tf

DEAN, PACKARD & MILLS,
MANUFACTURERS OF ALL KINDS OF
RAILROAD CARS,
SUCH AS
PASSENGER, FREIGHT AND CRANK CARS,
— ALSO —
SNOW PLOUGHS AND ENGINE TENDERS
OF VARIOUS KINDS.
CAR WHEELS and AXLES fitted and furnished at short notice; also, STEEL SPRINGS of various kinds; and
SHAFTING FOR FACTORIES.
☞ *The above may be had at order at our Car Factory,*
Reuel Dean,
Elijah Packard,
Isaac Mills,
} SPRINGFIELD, MASS.
1y48

T. & C. Wason,
MANUFACTURERS OF EVERY STYLE OF Freight and Baggage Cars—Forty rods east of the depot Springfield, Mass.

Running parts in sets complete. Wheels, axles, or any part of cars furnished and fitted up at short notice and in the best manner.

N. B. Particular attention paid to the manufacture of the *most improved Freight Cars.* We refer to the New Haven, Hartford and Springfield; Connecticut River; Harlem; Housatonic, and Western, Massachusetts, Railroads, where our cars are now in constant use.

SCHENECTADY LOCOMOTIVE WORKS,
SCHENECTADY, N. Y.
THE undersigned is prepared to execute orders for Locomotive Steam Engines and Tenders; and from long experience in building, can furnish machines of most superior workmanship. The Works are very large, and conveniently situated near the line of Railroad leading to Buffalo, and can furnish Locomotive Tenders and Railroad Machinery at short notice.
E. S. NORRIS.
February 24, 1849.

Mattewan Machine Works.
THE Mattewan Company have added to their Machine Works an extensive Locomotive Engine department, and are prepared to execute orders for *Locomotive Engines* of every size and pattern—also *Tenders, Wheels, Axles,* and other railroad machinery, to which they ask the attention of those who wish such articles, before they purchase elsewhere.
STATIONARY ENGINES, BOILERS, ETC.,
Of any required size or pattern, arranged for driving *Cotton, Woollen, or other Mills,* can be had on favorable terms, and at short notice.
COTTON AND WOOLLEN MACHINERY,
Of every description, embodying all the modern improvements, second in quality to none in this or any other country, made to order.
MILL GEARING,
Of every description, may be had at short notice, as this company has probably the most extensive assortment of patterns in this line, in any section of the country, and are constantly adding to them.
TOOLS.
Turning Lathes, Slabbing, Plaining, Cutting and *Drilling Machines,* of the most approved patterns, together with all other tools required in machine shops, may be had at the Mattewan Company's Shops, Fishkill Landing, or at 39 Pine street, New York.
WM. B. LEONARD, *Agent.*

MANUFACTURERS OF
IRON AND STEEL.

RAILROAD IRON.
THE NEW JERSEY IRON CO'S WORKS AT Boonton, are now in full operation, and can execute orders for Railroad Bars of any required pattern, equal in quality to any made in this country. Apply to
DUDLEY B. FULLER, *Agent,*
139 Greenwich street.
New York, October 25, 1848.

Pig and Bloom Iron.
THE Subscribers are Agents for the sale of numerous brands of Charcoal and Anthracite Pig Iron, suitable for Machinery, Railroad Wheels, Chains, Hollowware, etc. Also several brands of the best Puddling Iron, Juniata Blooms suitable for Wire, Boiler Plate, Axe Iron, Shovels, etc. The attention of those engaged in the manufacture of Iron is solicited by
A. WRIGHT & NEPHEW,
Vine Street Wharf, Philadelphia.

Railroad Iron, Pig Iron, &c.
600 Tons of T Rail 60 lbs. per yard.
25 Tons of 2½ by ½ Flat Bars.
25 Tons of 2½ by 9-16 Flat Bars.
100 Tons No. 1 Gartshrorie.
100 Tons Welsh Forge Pigs.
For Sale by A. & G. RALSTON & CO.
No. 4 So. Front St., *Philadelphia.*

LOCOMOTIVE FOR SALE.
(NOW RUNNING.)
A Good Locomotive Engine and Tender in good running order, for sale low. Address
E. S. NORRIS,
Schenectady Locomotive Works,
Schenectady, N. Y.
February 24, 1849. 4t.8

Railroad Iron.

1000 Tons T Rails, weighing about 60 lbs. to the yard, of the latest and most improved pattern, for sale by BOORMAN, JOHNSTON & CO.,
January 20, 1849. 6w

Railroad Iron.

THE TRENTON IRON COMPANY ARE NOW turning out one thousand tons of rails per month, at their works at Trenton, N. J. They are prepared to enter into contract to furnish rails of any pattern, and of the very best quality, made exclusively from the famous Andover iron. The position of the works on the Delaware river, the Delaware and Raritan canal, and the Camden and Amboy railroad, enables them to ship rails at all seasons of the year. Apply to
COOPER & HEWITT, *Agents.*
17 Burling Slip, New-York.
October 30, 1848.

Railroad Iron.

THE MOUNT SAVAGE IRON WORKS, Alleghany county, Maryland, having recently passed into the hands of new proprietors, are now prepared, with increased facilities, to execute orders for any of the various patterns of Railroad Iron. Communications addressed to either of the subscribers will have prompt attention. J. F. WINSLOW, *President*
Mount Savage Iron Works, Troy, N.Y.
ERASTUS CORNING, Albany.
WARREN DELANO, Jr., N.Y.
JOHN M. FORBES, Boston.
ENOCH PRATT, Baltimore, Md.
November 6, 1848.

RAILROAD IRON.

THE UNDERSIGNED ARE PREPARED TO contract for the delivery of English Railroad Iron of favorate brands, during the Spring. They also receive orders for the importation of Pig, Bar, Sheet, etc. Iron. THOMAS B. SANDS & CO.,
22 South William street,
February 3, 1848. New York.

RAILROAD IRON.

3000 Tons, about 60 lbs. per lineal yard—deliverable early in the Spring, and of undoubted quality, can be contracted for at a low rate. For sale by DAVIS, BROOKS & CO.,
68 Broad srteet.
New York, September 16, 1848.
Also on hand—1000 tons best quality Rails.

RAILROAD IRON & LOCOMOTIVE TYRES imported to order, and constantly on hand, by
A. & G. RALSTON,
4 South Front St., Philadelphia.

WILLIAM JESSOP & SONS'
CELEBRATED CAST-STEEL.

The subscribers have on hand, and are constantly receiving from their manufactory,
PARK WORKS, SHEFFIELD,
Double Refined Cast Steel—square, flat and octagon.
Best warranted Cast Steel—square, flat and octagon.
Best double and single Shear Steel—warranted.
Machinery Steel—round.
Best and 2d gy. Sheet Steel—for saws and other purposes.
German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.
Genuine "Sykes," L Blister Steel.
Best English Blister Steel, etc., etc., etc.
All of which are offered for sale on the most favorable terms by WM. JESSOP & SONS,
91 John street, New York.
Also by their Agents—
Curtus & Hand, 47 Commerce street, Philadelphia.
Alex'r Fullerton & Co., 119 Milk street, Boston.
Stickney & Beatty, South Charles street, Baltimore.
Moy 6, 1848.

Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery *for making Spikes*, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.
P. A. BURDEN, *Agent,*
Troy Iron and Nail Factory, Troy, N. Y.

LAP—WELDED
WROUGHT IRON TUBES
FOR
TUBULAR BOILERS,
FROM 1 1-2 TO 8 INCHES DIAMETER.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.
THOMAS PROSSER,
Patentee.
28 Platt street, New York.

THE NEWCASTLE MANUFACTURING Co. continue to furnish at the Works, situated in the town of Newcastle, Del., Locomotive and other steam engines, Jack Screws, Wrought Iron Work and Brass and Iron Castings, of all kinds connected with Steamboats. Railroads, etc.; Mill Gearing of every description; Cast Wheels (chilled) of any pattern and size, with Axles fitted, also with wrought tires, Springs, Boxes and bolts for Cars; Driving and other wheels for Locomotives.

The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H. Dobbs, Superintendent, will meet with immediate attention.
ANDREW C. GRAY,
a45 President of the Newcastle Manuf. Co.

TO RAILROAD COMPANIES AND MANUfacturers of Railroad Machinery. The subscribers have for sale American and English Bar Iron, of all sizes; English Blister, Cast, Shear and Spring Steel; Juniata Rods; Car Axles, made of double refined iron; Sheet and Boiler Iron, cut to pattern; Tires for Locomotive Engines, and other railroad carriage wheels, made from common and double refined B. O. Iron; the latter a very superior article. The Tires are made by Messrs. Baldwin and Whitney, Locomotive Edgine Manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside.
THOMAS & EDMUND GEORGE,
a45 N. E. cor. 12th and Market sts., Philad., Pa.

NICOLL'S PATENT SAFETY SWITCH FOR Railroad Turnouts. This invention for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails; being laid down or removed without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two castings and two rails; the latter, even if much worn or used, not objectionable..

Working models of the Safety Switch may be seen at Messrs. Davenport, Bridges & Kirk's Cambridge Port, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained, on application to the Subscriber, Inventor and Patentee.
G. A. NICOLLS,
Reading, Pa.

MACHINE WORKS OF ROGERS KETCHUM & GROSVENOR, *Patterson, N. J.* The undersigned receive orders for the following articles manufactured by them of the most superior description in every particular. Their works being extensive, and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and dispatch.

Railroad Work.—Locomotive Steam Engines and Tenders; Driving and other Locomotive Wheels, Axles Springs and Flange Tyres; Car Wheels of Cast Iron a variety of patterns and chills; Car Wheels of Cast Iron with wrought tyres. Axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and millwright work generally, hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.
ROGERS, KETCHUM & GROSVENOR,
Patterson, N. J., or 60 Wall St., New York.

IRON BRIDGES, BRIDGE & ROOF BOLTS, etc. STARKS & PRUYN, of Albany, New York. having at great expense established a manufactory with every facility of Machinery for Manufacturing Iron Bridges, Bridge and Roof Bolts, together with all kinds of the larger sizes of Screw Bolts, Iron Railings, Steam Boilers, and every description of Wrought Iron Work, are prepared to furnish to order, on the shortest notice, any of the above branches, of the very best of American Refined Iron, and at the lowest rates.

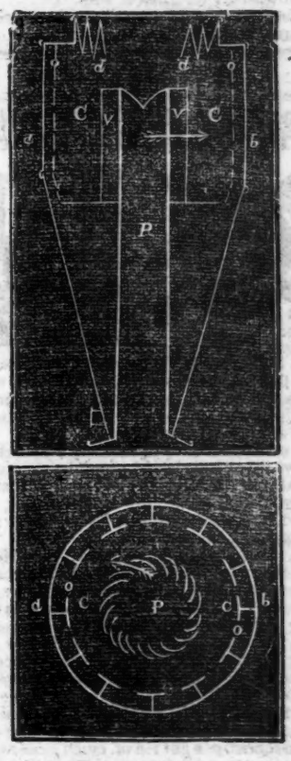
During the past year, S. & P. have furnished several Iron Bridges for the Erie Canal, Albany Basin, etc. —and a large amount of Railroad Bridge Bolts, all of which have given the most perfect satisfaction.

They are permitted to refer to the following gentlemen:

Charles Cook, Nelson J. Beach, Jacob Hinds,	Canal Commissioners of the State of New York.
Willard Smith, Esq.,	Engineer of the Bridges for the Albany Basin.
Messrs. Stone & Harris,	Railroad Bridge Builders, Springfield, Mass.
Mr. Wm. Howe,	
Mr. S. Whipple,	Engineer & Bridge Builder, Utica, N. Y.

January 1, 1849.

FRENCH & BAIRD'S
Patent Spark Arrester.



TO THOSE INTERESTED IN RAILROADS. Railroad Directors and Managers are respectfully invited to examine an improved Spark Arrester recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both Passenger and Freight Engines, and have been brought to such a state of perfection, that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust, they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase, or obtain further information in regard to their merits.

R. L. Stevens, president Camden and Amboy railroad company; Rich'd Peters, sup't Georgia railroad, Augusta, Ga.; G. A. Nicolls, sup't Reading railroad, Reading, Pa.; W. E. Morris, pres't Philadelphia, Germantown and Norristown railroad company, Philad.; E. B. Dudley, pres't W. and R. railroad co., Wilmington, N. C.; Col. Jas. Gadsden, pres't S. Carolina railroad co., Charleston, S. C.; W. C. Walker, agent V. and J. railroad, Vicksbuag, Miss.; R. S. Van Rensselaer, sup't Hart. and N. H. railroad; W. R. McKee, sup't Lexington and Ohio railroad; T. L. Smith, sup't N. Jersey railroad and transp. co; J. Elliott, sup't M. P., Philadel. and Wilm. railroad; J. O. Sterns, sup't Elizabethtown and Somerville railroad; R. R. Cuyler, pres't Central railroad, Savannah, Ga.; J. D. Gray, sup't Macon, (Ga.) railroad; J. H. Cleveland, sup't of Southern railroad, Monroe, Mich.; M. F. Crittenden, sup't mo.power Central railroad, Detroit, Mich.; G. B. Fisk, pres't Long Island railroad, Brooklyn, L. I.

Orders for these chimneys and arresters, addressed to the subscribers, care of Baldwin and Whitney, of Philadelphia, will be promptly executed.

The subscribers will dispose of single rights, or rights for one or more States on reasonable terms.

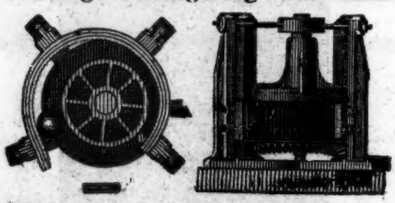
FRENCH & BAIRD.

Philadelphia, Pa., April 6, 1844.

The letters in the figures refer to the article given in the Journal of June, 1844.

MACHINERY.

Henry Burden's Patent Revolving Shingling Machine.



THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phœnixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has given universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving in power; the entire saving of shinglers, or hammerman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectnally; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll rounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

PATENT OIL FOR MACHINERY.—The Subscribers are now prepared to supply "Devlan's Patent Oil" in any quantity; Machinists, Manufacturers, etc., are requested to call and examine the article. Certificates of its efficacy and superiority over all other oils, from several of our most extensive manufacturers are now in our possession.

Also,

OIL.—Bleached and Unbleached Winter, Solar, Elephant and Whale Oils; also light colored selected racked Whale Oil, suitable for retailing. For sale by

ALLEN & NEEDLES,
No. 28 and 30 S. Wharves, near Chestnut St.,
Philadelphia.

February 24, 1849.

ENGINE AND CAR WORKS.

DAVENPORT & BRIDGES,

HAVING ASSOCIATED WITH THEM

MR. LEWIS KIRK, OF READING, PA.,

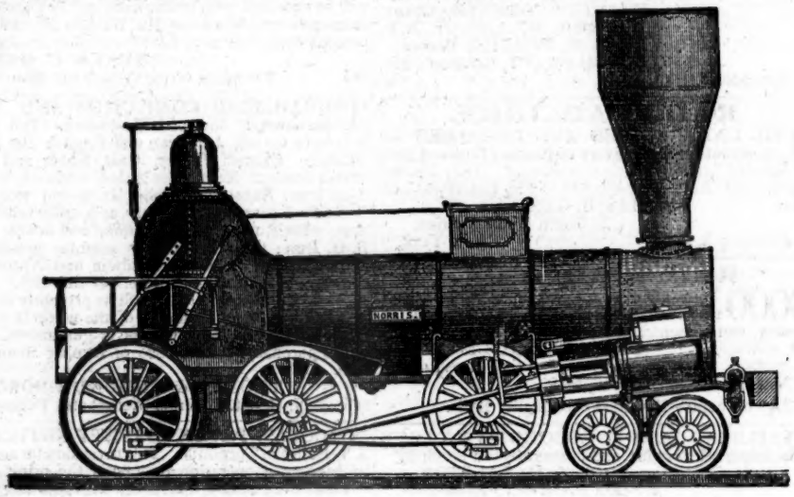
And recently enlarged their Establishment, (making it now the most extensive in the United States,) they are prepared to manufacture to order Locomotive Engines and Cars of every description. Stationary Engines, Steam Hammers, Boilers, and all kinds of Railroad Machinery. Also, Castings and Forge Irons of all kinds —including Chilled Wheels, Frogs, Chairs, Switches, Car Axles, and Locomotive Cranks, Connecting Rods, Steel Springs, Bolts, etc., etc. Orders from all parts of the country solicited for Engines and Cars, or any part or parts of the same. All orders will be furnished at short notice, and on as good terms as any manufactory in the country. Coaches pass our works every fifteen minutes during the day, from Brattle St., Boston.

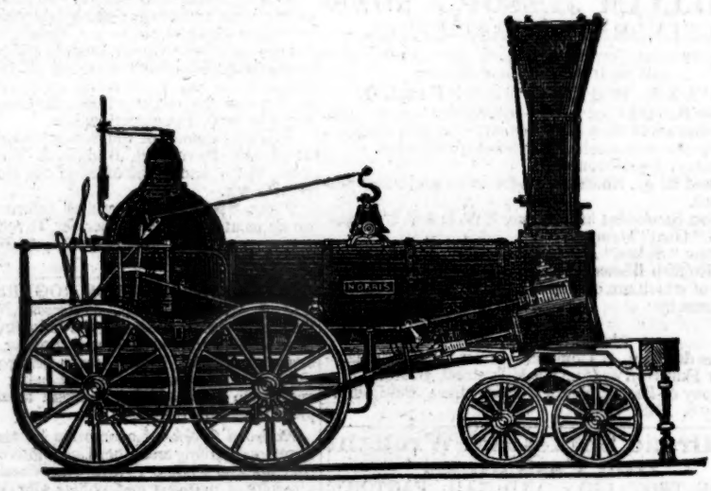
DAVENPORT, BRIDGES & KIRK.

Cambridgeport, Mass., February 16th, 1849.

NORRIS' LOCOMOTIVE WORKS.

BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA,





THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size.

Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusunl advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

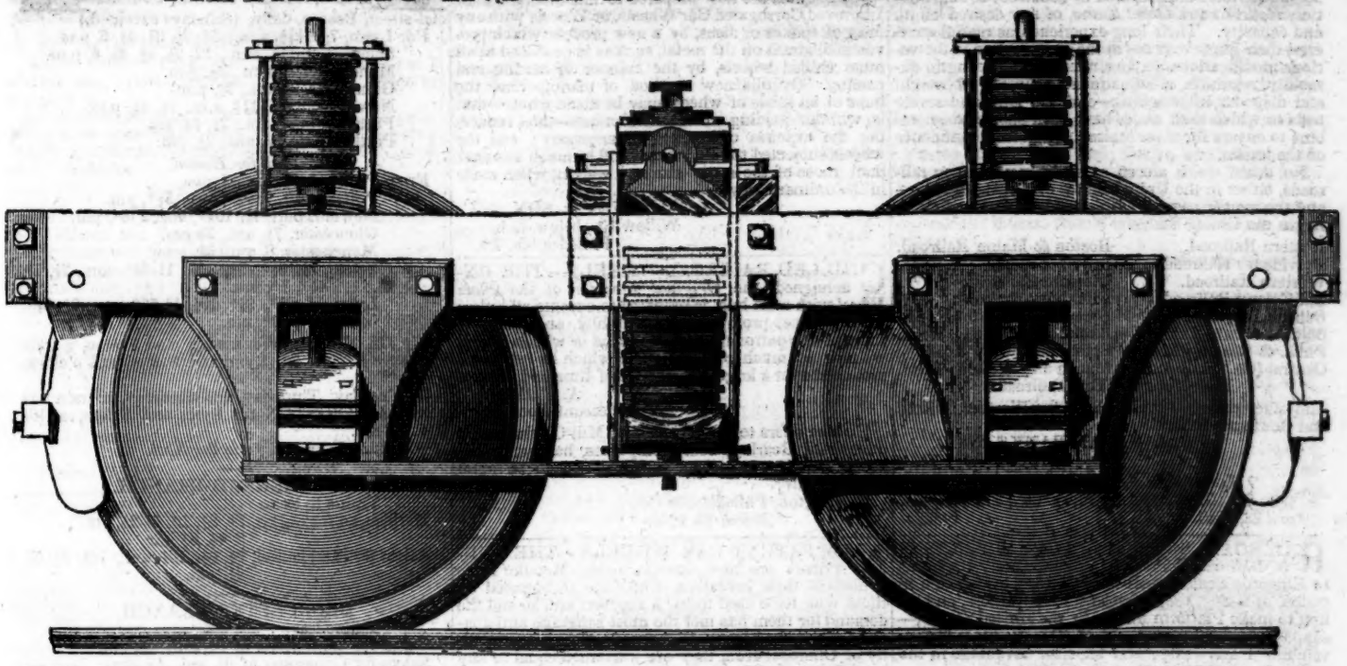
Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tires are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS' BROTHERS.

FOWLER M. RAY'S

METALLIC INDIA RUBBER CAR SPRINGS.



THE NEW ENGLAND CAR COMPANY have introduced these Springs, and they are now in operation on every Railroad terminating in Boston, and several others in New England and the Middle States. Their qualities are well understood, or may be readily ascertained by every person interested to know them. They require no recommendation from the Company. The only known compound of India Rubber good for anything for this purpose is the Vulcanised India Rubber, invented by Charles Goodyear, of New Haven, and the application of it, and the form in which it is used, were invented by F. M. Ray, of New York. The right to manufacture and sell the substance itself for the purpose of Railroad Carriage Springs, as well as the form and application of it, are held exclusively by the New England Car Company. No other Company, or individual, has any right to sell or use it for such purpose, or has attempted so to use it in this country.

The New England Car Company guarantee the right to use the article they sell for Railroad Carriage Springs only, against all adverse rights, whether under patents or otherwise; and all persons and corporations are cautioned against a similar use of the article, when purchased of any other parties.

The Springs they sell are all manufactured in a uniform manner, and under the immediate inspection of their own Agent, and have been proved and known to answer the purpose. None have been manufactured in this country or imported from abroad besides their own, which would at all answer the purpose; and if any such should be produced, it cannot be used for Car Springs, while Goodyear's patents, and the right of the New England Car Company under them, remain in force.

The New England Car Company are now prepared to answer orders for all that may be called for, on reasonable notice, and uniform and equitable terms.—They invite the most careful examination, and the severest scrutiny, into the merits of their Springs, wherever they have applied them. And if after such examination, your Company should judge it for their interest to adopt them, the N. E. Car Company would respectfully invite the patronage which they think they deserve, and are confident of receiving at your hands.

EDWARD CRANE, *Agent*,
Office 99 State-street.

Orders may alse be left with WM. RIDER & BROTHERS, No. 58 Liberty-street, New York, or with F. M. RAY, *Agent*,
100 Broadway, N. Y.

The following article from the pen of Mr. HALE, the President of the Boston and Worcester Railroad, expresses his opinion of this important improvement, as published in the Boston Daily Advertiser of June 7, 1848. He says:

"Of the numerous uses to which the wonderful elasticity and durability of India Rubber renders this material applicable, we are hardly aware of one in which it has been more successful than in forming springs for railroad cars. We have had occasion to observe, for some months past, its application to this use, on one of the passenger cars on the Newton special train of the Boston and Worcester railroad. It is there used, not only for the springs on which the car rests, but for the springs attached to the draw bar at each end of the car, to prevent any jar on the sudden advancement or interruption of the motion of the car. For both these purposes it appears to be admirably adapted, and we do not learn, that during the period in which it has been used, any defect in it has been discovered. It renders the movements of the car extremely easy, and protects it more effectually, we think than any other spring which we have ever seen in use, from every harsh or unpleasant motion, either vertical or horizontal. It is simple in its form and application, extremely light, and little liable to get out of repair.—During the period of some months, in which we have seen the springs in operation, there is no apparent wear or diminution of their efficacy."

The above statement of Mr. Hale agrees with my own observation in all particulars.

WM. PARKER, Supt., B. & W. R. R.
June 8, 1848.

I fully concur in the foregoing statement, from practical observation of its use for the last five months, on the Boston and Worcester railroad corporation cars.

D. N. PICKERING, Jr.,
Supt. Car Building B. & W. R. R.
Boston, June 10, 1848.

The New England Car Company have introduced their Vulcanized India Rubber Car Springs on the roads with which we are respectively connected, and we fully concur with Mr. Hale in the above opinion of their character and properties.

DAVENPORT & BRIDGES, Car Builders.
BRADLEY & RICE, Car Builders.
Boston, June, 1848.

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This Cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,
142 Front-street, New York.

☞ Orders for the above will be received and promptly attended to at this office. 32 1y.

ENGINEERS' AND SURVEYERS'
INSTRUMENTS MADE BY
EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.

No 23 Pear street, below Walnut,
1y10 near Third, Philadelphia.

MASONS AND STONECUTTERS WANTED—AT THE U. S. NAVY YARD, NEAR PENSACOLA.—Twenty good Stonecutters can find immediate employment at dressing granite by the superficial foot. The *beds* and *builds* of the stone will alone be dressed—the face being left rough. For this work the high price of 25 cents per superficial foot will be allowed on the stone now in the yard, and the tools sharpened.

Those who are Masons as well as Stonecutters, will be preferred: and, more especially, those who are disposed to work, when necessary, in Diving Bells. The works in progress are very extensive, and will, probably, afford constant employment for some years.

To good workmen, of the above description, when employed by the day, the wages will be $2.50, on the ten hour system; to which, an addition at the rate of one dollar per day will be made for such time as they may be employed in the Diving Bells. Or at the rate of $3.50 per day.

The Diving Bells, and Machinery, are constructed on the most approved plans, and will be abundantly supplied with air and light, and the water kept low in the Bells, so that no inconvenience will be felt by the workmen, the depth being only from 25 to 30 feet.

Two good MACHINISTS can also find employment in the Navy Yard. Apply in person, to

JAMES HERRON,
Civil Engineer, Navy Yard.

CORROSIVE SUBLIMATE.

THIS article now extensively used for the preservation of timber, is manufactured and for sale by POWERS & WEIGHTMAN, manufacturing Chemists, Philadelphia.

Jan. 20, 1849.

RAILROAD SCALES, ETC.

FAIRBANKS' RAILROAD SCALES.—THE subscribers are prepared to construct at short notice, *Railroad* and *Depot Scales*, of any desired length and capacity. Their long experience as manufacturers—their improvements in the construction of the various modifications, having reference to strength, durability, retention of adjustment, accuracy of weight and dispatch in weighing—and the long and severe tests to which their scales have been subjected—combine to ensure for these scales the universal confidence of the public.

No other scales are so extensively used upon railroads, either in the United States or Great Britain;—and the managers refer with confidence to the following in the United States.

Eastern Railroad.	Boston & Maine Railroad.
Providence Railroad.	Providence and Wor. Road.
Western Railroad.	Concord Railroad.
Old Colony Railroad.	Fitchburg Railroad.
Schenectady Railroad.	Syracuse and Utica Road.
Balt. and Ohio Railroad.	Baltimore and Susq. Road.
Phila. & Reading Road.	Schuylkill Valley Road.
Central (Ga.) Railroad.	Macon and Western Road.

New York and Erie Railroad.

And other principal Railroads in the Western, Middle and Southern States.

E. & F. FAIRBANKS & CO.
St. Johnsbury, Vt.

Agents, } FAIRBANKS & Co., 81 Water st., N. York.
} A. B. NORRIS, 196 Market st., Philadelphia.
April 22, 1848. ly*17

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicott's Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make Platform Scales in the United States;—supposing that an experience of *Twenty years* has given him a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. ELLICOTT has made the largest Railroad Scale in the world, its extreme length was One Hundred and Twenty Feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT,
Factory, 9th st., near Coates, cor. of Melon st.
Office, No. 3, North 5th street,
ly25 Philadelphia, Pa.,

PATENT MACHINE MADE HORSE-SHOES.

The Troy Iron and Nail Factory have always on hand a general asssortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest.

P. A. BURDEN, *Agent*,
Troy Iron and Nail Factory, Troy, N. Y.

SPRING STEEL FOR LOCOMOEIVES, TENDERS AND CARS.—The subscriber is engaged in manufacturing spring steel from 1½ to 6 inches in width, and of any thickness required: large quantities are yearly furnished for railroad purposes, and wherever used its quality has been approved of. The establishment being large, can execute orders with great promptitude, at reasonable prices, and the quality warranted. Address J. F. WINSLOW, *Agent*,
Albany Iron and Nail Works.

PATENT HAMMERED RAILROAD, SHIP & Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscribers at the works will be promptly executed.

JOHN F. WINSLOW, *Agent*.
Albany Iron and Nail Works, Troy, N. Y.

The above Spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, N. York; J. H. Whitney, do.; E. J. Etting, Philadelphia; William E. Coffin & Co., Boston.

RAILROAD WHEELS.

CHILLED RAILROAD WHEELS.—THE UNdersigned are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

A. WHITNEY & SON,
Willow St., below 13th,
Philadelphia, Pa.

CHILLED RAILROAD WHEELS.—THE UNdersigned, the *Original Inventor* of the *Plate Wheel* with solid hub, is prepared to execute all orders for the same, promptly and faithfully, and solicits a share of the patronage for those kind of wheels which are now so much preferred, and which he originally produced after a large expenditure of time and money.

A. TIERS,
Point Pleasant Foundry.

He also offers to furnish Rolling Mill Castings, and other Mill Gearing, with promptness, having, he believes, the largest stock of such patterns to be found in the country. A. T.

Kensington, Philadelphia Co., }
March 12, 1848. }

NEW PATENT CAR WHEELS.—THE SUBscribers are now manufacturing Metallic Plate Wheels of their invention, which are pronounced by those who have used them, a superior article, and the demand for them has met the most sanguine anticipations of the inventors. Being made of a superior quality of Charcoal Iron, they are warranted equal to any manufactured.

We would refer Railroad Companies and others to the following roads that have them in use. Hartford and New Haven, Connecticut River, Housatonic, Harlem, Farmington, and Stonington Railroads.

SIZER & CO.,
Springfield, Mass.

RAILROADS.

BOSTON AND PROVIDENCE RAILROAD. On and after MONDAY, OCTOBER 2d, the

Trains will run as follows:—

Steamboat Train—Leave Boston at 5 pm. Leaves Providence on the arrival of the train from Stonington.

Accommodation Trains—Leave Boston at 8 am., and 3½ pm. Leave Providence at 8½, a.m., and 3½, pm.

Dedham Trains—Leave Boston at 9 am., 12 m., 3, 6, and 10½ pm. Leave Dedham at 7½, 10½, am., 1½, 4½, and 9 pm.

Stoughton Trains—Leave Boston at 11½ am., and 4½ pm. Leave Stoughton at 8½ am., and 2½ pm.

Freight Trains—Leave Boston at 11 am., and 6 pm. Leave Providence at 4 am., and 7.40 am.

On and after Wednesday, Nov. 1, the DEDHAM TRAIN will run as follows: Leave Boston at 9 am., 12 m., 3, 5½, and 10½ pm. Leave Dedham at 8, 10½, am., 1½, 4½, and 9 pm.

WM. RAYMOND LEE, Sup't.

NORWICH AND WORCESTER RAILROAD. Winter Arrangement.—1848.

Accommodation Trains daily (Sundays excepted.)

Leave Norwich at 6 am., 12 m., and 2½ pm.

Leave Worcester at 6½ and 10 am., and 4½ pm., connecting with the trains of the Boston and Worcester, and Providence and Worcester railroads.

New York & Boston Line. Railroad & Steamers. Leave New York and Boston daily, Sundays excepted, at 5 pm.—At New York from pier No. 1, North River.—At Boston from corner Lincoln and Beach streets, opposite United States Hotel. The steamboat train stops only at Framingham, Worcester, Danielsonville and Norwich.

Freight Trains leave Norwich and Worcester daily, Sundays excepted.—From Worcester at 6½ am., from Norwich at 7 am.

☞ *Fares are Less when paid for Tickets than when paid in the Cars.* ☜

32 1y. S. H. P. LEE, Jr., Sup't.

EASTERN RAILROAD, WINTER ARRANGEment. On and after MONDAY, Oct. 2, 1848,

Trains will leave Eastern Railroad Depot, Eastern Avenue, Commercial-street, Boston, daily, (Sundays excepted.)

For Lynn, 7, 9 11½, a.m., 12, 2½, 3½, 4½, 6, p.m.
Salem, 7, 9, 11½, a.m., 12, 2½, 3½, 4½, 6, p.m.
Manchester, 9, a.m., 3½, p.m.
Gloucester, 9, a.m., 3½, p.m.
Newburyport, 7, 11½, a.m., 2½, 4½, p.m.
Portsmouth, 7, am., 2½, 4½, pm.
Portland, Me., 7, am., 2½, pm.

And for Boston,

From Portland, 7½, am., 3, pm.
Portsmouth, 7, 9½*, am., 5½*, pm.
Newburyport, 7½, 10½*, am., 2, 6*, pm.
Gloucester, 7½, am., 3½ pm.
Manchester, 8, am., 3½, pm.,
Salem, 7½, 8½*, 9*, 10½, 11-40*, am., 2½, 3*, 4½*, 7*, pm.
Lynn, 7½, 8½*, 9½*, 10½, 11-55*, am., 2½, 3½*, 4½*, 7½*, pm.

☞ On Monday, Wednesday, and Friday, a train will leave Boston for Lynn and Salem, at 7 o'clock; p.m.

On Tuesday, Thursday, and Saturday, a train wil leave EAST BOSTON for Lynn and Salem, at 10½ o'clock, pm.

* *Or on their arrival from the East.*

MARBLEHEAD BRANCH.

Trains to leave
Marblehead for Salem, 7½, 8½, 10, 11-25, am. 2, 4½, 6½, pm.
Salem for Marblehead, 7½, 9½, 10½, am., 12½, 3½, 5½, 6½, pm.

GLOUCESTER BRANCH.

Trains leave
Salem for Manchester at 9½, am., 4½, pm.
Salem for Gloucester at 9½, am., 4½, pm.
Trains leave
Gloucester for Salem at 7½, am., 3½ pm.
Manchester for Salem at 8, am., 3½ pm.
Freight Trains each way daily. Office 1 Merchants' Row, Boston.

Feb. 3. JOHN KINSMAN, Superintendent.

ESSEX RAILROAD—SALEM to LAWRENCE, through Danvers, New Mills, North Danvers, Middleton, and North Andover.

On and after Monday, Oct. 2, 1848,

trains leave daily (Sundays excepted,) Eastern Railroad Depot, Washington-st.

Salem for South Danvers at		7.45, 9, am., 12.45, 3.15, 6.45, pm.
Salem for North Danvers at		7.45, 9, am., 12.45, 3.15, pm.
Salem for Lawrence,		9*, am., 3.15*, pm.
Danvers	"	9.10, am., 3.15, pm.
North Danvers	"	9.20, am., 3.35, pm.
Middleton	"	9.30, am., 3.45, pm.
North Andover	"	10, am., 4.20, pm.
South Danvers for Salem at		7.45, 8.45, 11.30, am. 2, 45.5, pm.
North Danvers	"	8.20, 11.10, am., 1.40, 5.40, pm.
Middleton	"	11, am., 4.30, pm.
North Andover	"	10.35, am., 5.05, pm.
Lawrence	"	10.30*, am., 5*, pm.

* These trains will not stop at Frye's Mills nor Grove-st.

JOHN KINSMAN, Superintendent.
Salem, Oct. 2, 1848.

BOSTON AND MAINE RAILROAD.

Winter Arrangement.
Commencing Nov. 13, 1848

Trains leave Boston as follows, viz.: For Portland at 7 am. and 2½ pm.
Great Falls at 7 am., 2½ and 3½ pm.
Haverhill at 7 and 11½ am., 2½, 3½ and 5 pm.
Lawrence at 7, 9, 11½ am., 2½, 3½, 5, 6 pm.
Reading 7, 9 & 11½ am., 1½, 3½, 5, 6, 7½ & 10 pm.
Trains leave for Boston as follows, viz.: From Portland at 7½ am., and 3 pm.
Great Falls at 6½ and 9½ am., and 4½ pm.
Haverhill at 7, 8½ and 11 am., 3 and 6½ pm.
Lawrence at 6½, 7½, 8½, 11½, am., 12½, 3½, 6½ pm.
Reading at 6½, 7, 7½, 9½, 11½ am., 1½, 3½, 7½, 9 pm.

MEDFORD BRANCH TRAINS.

From Medford at 6½, 8, 10½ am., 2, 4, 6, 9, pm.
From Boston at 7½, 9½ am., 12½, 2½, 5½, 6½, 10 pm.
The Depot in Boston is on Haymarket Square.

CHAS. MINOT, Super't.
Boston, Nov. 7, 1848.

NEW YORK AND ERIE RAILROAD. WINTER ARRANGEMENT.

On Monday, January 1st, and until further notice, the trains

will run as follows:

FOR PASSENGERS.

Leave NEW YORK, (foot of Duane street,) at 7 o'clock, am., by steamer Erie. Leave Port Jervis at 6 o'clock am.

An Accommodation Train, for passengers and milk, will run in connection with the steamboat towing the Freight Barge, leaving New York and Port Jervis at 4 o'clock pm.

FOR FREIGHT.

Leave New York at 4 o'clock, pm., per steamboat New Haven, and Barges.

The Road will be opened to Binghampton and intermediate places on Monday, the 8th January, 1849, on which day, and until further notice, the through trains will run as follows:

FOR PASSENGERS.

Leave New York from Duane street Pier, at eight o'clock, and Binghamton at 7 o'clock, am., daily.

FOR FREIGHT.

Leave New York at 4 o'clock, pm., and Binghamton at 7 o'clock, am., daily, Sundays excepted.

H. C. SEYMOUR, Superintendent.
January 1st, 1849. ja3

NEW YORK & HARLEM RAILROAD, DAILY. WINTER ARRANGEMENT.

ON and after December 1st, 1848, the Cars will run

as follows, until further notice:—

Trains will leave the Ciiy Hall, New York, for Harlem and Merisiana at 7, 9, 9.30, 11, am. 12 m., 2, 4, 4.15, 5.30, pm.

Trains will leave the City Hall, New York, for Fordham and Williams Bridge, at 7 30 and 9 30 am., 12 m., 2, 4 15, 5 30 pm.

Trains will leave the City Hall, New York, for Hunt's Bridge, Underhill's and Hart's Corners, at 9 30 am., 4 15 pm.

Trains will leave the City Hall, New York, for T'kahoe and White Plains, at 7 30 and 9 30 am., 3 and 4 15 pm.

Trains will leave Davis' Brook, Pleasantville, Chapequa, Mount Kisko, Bedford, Mechanicsville, Purdy's and Croton Falls, at 8 30 and 9 30 am., 3 pm.

NOTICE—Passengers are reminded of the great danger of standing upon the platform of the cars, and hereby notified that the practice is contrary to the rules of the Company, and that they do not admit any responsibility for injury sustained by any passenger upon the platforms, in case of accident.

Returning to New York will leave

Morisiana and Harlem at 7 20,8, 8 50, 10 am., 12m., 1 35, 3, 3 45, 5, 5 35 pm.

Fordham and William's Bridge at 7, 8 30, 9 50 am., 1 15, 3 25, 5 20 pm.

Hunt's Bridge at 8 20, am., 3 18 pm.
Underhill's Road at 8 10 am., 4 08 pm.
Tuckahoe at 8 05, 9 30 am., 3 05, 5 pm.
Hart's Carners at 7 55 am., 2 52 pm.
White Plains at 7 45, 9 10 am., 2 45, 4 40 pm.
Davis' Brook at 9 am., 2 35, 4 30 pm.
Pleasantville at 8 49 am., 2 20, 4 19 pm.
Mount Kisko at 8 30 am., 2, 4 pm.
Bedford at 8 25 am., 1 55, 3 55 pm.
Mechanicsville at 8 15 am., 1 45, 3 45 pm.
Purdy's at 8 05 am., 1 35, 3 35 pm.
Croton Falls, at 8 am., 1 30, 3 30 pm.

The trains for Harlem and Morisiana leaving City Hall at 7, 9, 9 30, 11, 12, 2, 4, and 5 30, and from Morisiana and Harlem at 7 20, 8, 10, 12, 1 35, 3, 3 45, and 5 oclock, will land and receive passengers at 27th st., 42d, 51st, 61st, 79th, 86th, 109th, 115th, 125th, and 132d streets.

The 7 30 am., and 3 pm. Trains from New York to Croton Falls, and the 8 am. Train from Croton Falls will not stop between White Plains and New York, except at Tuckahoe, Williams Bridge and Fordham.

A car will precede each train ten minutes to take up passengers in the city. The last car will not stop, except at Broom st. and 32d street.

Freight Trains leave New York at 6 am. and 1 pm.: leave Croton Falls at 7 am. and 2 30 pm., Sundays excepted.

NOTICE—On Sundays the 7 am. to Harlem and Morrisiania, returning at 8 o'clock, and the 7 30 am. to Croton Falls, returning 1 30 pm., will be omitted, and the 7 am. from Williams Bridge will leave at 7 40, and Morrisiania and Harlem at 8 o'clock am. d1

BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger Trains

run daily, except Sundays, as follows:

Leaves Baltimore at - - -	9 am. and 9½ pm.
Arrives at - - - -	9 am. and 6½ pm.
Leaves York at - - - -	5 am. and 3 pm.
Arrives at - - - -	12½ pm. & 8 pm.
Leaves York for Columbia at -	1½ pm. & 8 am.
Leaves Columbia for York at -	8 am. & 2 pm.

Fare:

Fare to York - - - -	$1 50
" Wrightsville - - - -	2 00
" Columbia - - - -	2 12½

Way points in proportion.

PITTSBURG, GETTYSBURG, AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg - - - - - - - $9
Or via Lancaster by railroad - - - 10
Through tickets to Harrisburg or Gettysburg - 3
In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owning's Mill, arriving at the Mills at - - 5½ pm.
Returning, leaves owning's Mills at - - 7 am.

D. C. H. BORDLER, Sup't.
21 1y Ticket Office, 63 North st.

GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD, FROM ATLANTA TO DALTON, 100 MILES.

This Road, in connection with the South Carolina Railroad, and Western and Atlantic Railroad, now forms a continuous

line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga. 32 miles from Chattanooga, Tenn.

RATES OF FREIGHT.		Between Augusta and Dalton. 271 miles.	Between Charleston, and Dalton. 408 miles.
1st class	Boxes of Hats, Bonnets, and Furniture, per cubic foot - -	$0 18	$0 28
2d class	Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs, and Confectionary, per 100 lbs.	1 00	1 50
3d class	Sugar, Coffee, Liquor, Bagging, Rope, Cotton, Yarns Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow ware, Castings, Crockery, etc.	0 60	0 85
4th class	Flour Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc. - - -	0 40	0 65
	Cotton, per 100 lbs. -	0 45	0 75
	Molasses per hogshead -	8 50	13 50
	" " barrel - -	2 50	4 25
	Salt per bushel - -	0 18	
	Salt per Liverpool sack -	0 65	
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows - -	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Company will be forwarded free of commissions. Froights payable at Dalton.

F. C. ARMS,
44*1y Sup't of Transportation.

THE WESTERN AND ATLANTIC RAILROAD.—This Rood is no in operation to Oothcaloga, a distance of 80 miles, and counects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur, and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.

LITTLE MIAMI RAILROAD.—WINTER ARRANGEMENT.

Change of Hours.

On and after Thursday, November

9th, 1848, until further uotice, Passenger Trains will run as follows:

Leave Depot East Front street at 9½ o'clock, am., and 2½ o'clock, p.m., for Milford, Foster's Crossings, Deerfield, Morrow, Waynesville, Spring Valley, Xenia, Yellow Springs, and Springfield.

Returning, leaves Springfield, at 2½ o'clock, and 9½ o'clock, am.

Passengers for New York, Boston, and intermediate points, should take the 9½ o'clock, am., Train from Cincinnatti.

Passengers for Columbus, Zanesville, Wheeling and intermediate towns, should take the 9½ o'clock, am., Train.

The Ohio Stage Company are running the following lines in connection with the Trains:

A Daily Daylight Line to Columbus from Springfield in connection with the Morning Train from Cincinnatti. Also, Daily Lines to Columbus, from Xenia and Springfield, connecting with the 2½ o'clock, pm. Train from Cincinnatti.

The 2½, pm., Train from Cincinnatti, and 2½, am., Train from Springfield, are intended for the accommodation of Way Passengers only, and will be eight hours on the road.

Fare from Cincinnatti to		Xenia - -	$1 90
Do	do	Springfield - -	2 50
Do	do	Sandusky City -	6 50
Do	do	Buffalo - -	10 00
Do	do	Columbus - -	4 50

For other information and through tickets, apply at the Ticket Office on Broadway, near Front-st., Cincinnatti.

W. H. CLEMENTS, Superintendent.

☞ The Company will not be responsible for Baggage exceeding 50 dollars in value, unless the same is returned to the Conductors or Agent, and freight paid at the rate of a passage for every 500 dollars in value to that amount.

BALTIMORE AND OHIO RAILROAD, MAIN STEM.

The Train carrying the Great Western

Mail leaves Baltimore every morning

at 7½, and Cumberland at 8 o'clock passing Ellicott's Mills, Frederick Harper's Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry—with the various railroad and steamboat lines between Baltimore and Philadelphia, and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between these points $7, and 4 cents per mile for less distances.—Fare through to Wheeling $11, and time about 36 hours, to Pittsburgh $10, and time about 32 hours.—Through tickets from Philadelphia to Wheeling $13, to Pittsburgh $12. Extra train daily, except Sundays, from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M., and 5 P. M., and 12 at night from Baltimoae, and at 6 A. M. and 5½ P. M. from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington, and the Relay House. Fare $1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for immediate distances. s13 y1

PHILADELPHIA, WILMINGTON, & BALTIMORE RAILROAD.—1848.

Winter Arrangement.

December 4th.—Fare $4.

Leave Philadelphia 8 am., and 4 pm.
Leave Baltimore 9 am, and 8 pm.
Sunday—Philadelphia only at 4 pm.
" Baltimore only at 8 pm.

Trains stop at way stations. A second class car run with morning line only.

Charleston, S. C.

Through tickets Philadelphia to Charleston, $20.
Connecting lines to Charleston leave Philadelphia, at 4 pm. daily—leave Baltimore at 11½ pm. daily.

Pittsburg and Wheeling.

Through ticket, Philadelphia to Pittsburg, $20.
" " Wheeling, 13.
All through tickets only sold at office Philad.

Wilmington Accommodation.

Leaves Philadelphia at 1½ and 4 pm.
Leaves Wilmington at 8 am., and 4 pm.
N.B.—Extra baggage charged for.

I. R TRIMBLE, Gen. Supt.

RIDER'S PATENT IRON BRIDGE.

THE RIDER IRON BRIDGE having now been fully tested on the Harlem Railroad, by constant use for about eighteen months, and found to answer the full expectations of its most sanguine friends, is now offered to the public with the utmost confidence as to its great utility over any other Bridge now known.

The plan of this Bridge is to use the iron so as to obtain its greatest longitudinal strength, and at the same time is so arranged as to secure the combined principles of the *Arch*, *Suspension* and *Triangle*, all under such controlling power as causes each to act in the most perfect and secure manner, and at the same time impart its greatest strength to the whole work.

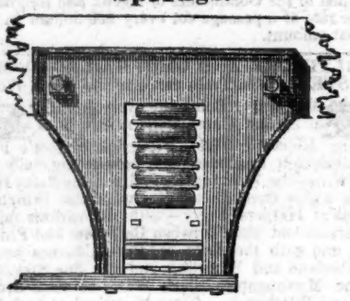
THE RIDER IRON BRIDGE COMPANY are prepared to furnish large quantities of Iron Bridging for Rail Road or other purposes, made under the above Patent, at short notice, and at prices far *more economical* than the best wood structure, and on *certain conditions*, the first cost may be made the same as wood.

Models, and pamphlets giving full descriptions of the RIDER BRIDGE, with certificates based on actual trial from undoubted sources, will be found at the office of the Company, **74** BROADWAY, *up stairs*, or of W. RIDER & BROTHERS, **58** *Liberty Street*, where terms of contract will be made known, and where orders are solicited.

M. M. WHITE,
Agent for the Company.

November 25, 1848.

Fuller's Patent India-Rubber Springs.



THERE *can now be no ground of opposition whatever to these Springs.* The Commissioner of Patents has not only rejected the application for a Patent for a similar Spring, but *a Patent has just been granted for an entirely new species of India Rubber*, the quality of which can be surpassed by no other kind, as the experiments which have lately been publicly made, have fully proved. No extremes of heat or cold can effect it, nor will any amount of pressure permanently alter its shape. This Patent refutes the statement of the "New England Car Company" as to their sole right to use India Rubber.

The Spring (composed by alternate layers of India Rubber Discs and Metal Plates) is superior to any other form of Spring, for several reasons: It is the lightest, the most simple and most durable—there being less friction in this than in other kind; it can be regulated to any extent desired. A less quantity of Rubber is required in this form to make a good spring than in any other because each disc or ring of India Rubber is firmly supported by metal plates, and forms in itself a distinct spring—nor is any spiral spring required. The Patentee is consequently able to supply efficient springs at a less cost than any other parties can do. Purchasers are guaranteed in the use of these springs.

This spring has been used nearly four years with complete success. It is applicable equally to Passenger and Freight Cars, to Locomotives and Tenders.—Bumpers and Draw Springs are always kept on hand, which merely require screwing to a car. It has lately been applied also to several kinds of *Machines*.

Action will be brought against all persons infringing upon these patents.

The subscriber will show Models and Drawings of the various modes of application to CARS, Machines, Omnibuses, &c.

G. M. KNEVITT, Agent.

Principal office, No. 78 Broad st., New York.

Branch office, Messrs. James Lee & Co.'s, No. 18 India Wharf, Boston.

Mr. Hale, the President of the Boston adn Worcester Railroad, wrote an article concerning Fuller's Springs. The "New England Car Company" take the liberty of publishing that article, omitting, however, a very important part; it is therefore given in full now, and the portion omitted by the New England Car Company is printed in italics, that the public may judge the manner in which this "company" pervert Mr. Hale's meaning.

[*From the Boston Advertiser of the 7th June*].

INDIA RUBBER SPRINGS FOR RAILROAD CARS.

"Of the numerous uses to which the wonderful elasticity and durability of India rubber, renders this material applicable, we are hardly aware of one, in which it has been more successful than in forming springs for railroad cars. We have had occasion to observe, for some months past, its application to this use, on one of the passenger cars on the Newton special train of the Boston and Worcester railroad.—It is there used not only for the springs on which the car rests, but for the springs attached to the draw bar, at each end of the car, to prevent any jar on the sudden commencement, or interruption of the motion of the car. For both these purposes it seems to be admirably adapted, and we do not learn that during that period in which it has been used, any defect has been discovered. It renders the movements of the car extremely easy, and protects it more effectnally, we think, than any other spring we have seen in use, from every harsh or unpleasant motion, either vertical or horizontal. It is also simple in its form and application, extremely light, and little liable to get out of repair. During the period of some months in which we have seen the springs in operation, there is no apparent wear or diminution of its efficiency. *Each spring is composed of several circular layers of rings of India rubber, a thin metallic plate of the same size being interposed between each of the layers. From the simplicity of its form, it cannot be expensive, and it admits of being made more or less elastic almost at pleasure. The invention, we understand, was first patented in England, where it has been introduced into general use on several of the principal railroads, and we have no doubt it will come into very extensive use in this country. The patent for this invention, we understand, has been granted to Mr. W. C. Fuller, in England and France, and also in this country. Mr Knevitt, of New York, is the agent for the patentee in the United States, and he has established a branch office for the supply of the article in this city, as may be learned from an advertisement in another column of this paper.*"

MANUFACTURE OF PATENT WIRE ROPE and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers, etc, by

JOHN A. ROEBLING, *Civil Engineer*,
Pittsburgh, Pa.

These *Ropes* are now in successful operation on the planes of the Portage railroad in Pennsylvania, on the Public Slips, on Ferries, and in Mines. The first rope put upon Plane No. 3, Portage railroad, has now run four seasons, and is still in good condition.

PHILADELPHIA & READING RAILROAD.
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A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock am.

The Train from Philadelphia arrives at Reading at 12 18 m.

The Train from Pottsville arrives at Reading at 10 43 am.

	Miles.	No. 1.	No. 2
Fares.			
Between Phila. and Pottsville,	92	$3.50 and	$3.00
" " Reading	58	2.25 and	1.90
" Pottsville "	34	1.40 and	1.20

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Passenger Depot in Philadelphia corner of Broad and Vine streets. 8tf.

CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers & Freight

Rate of Passage - -	$8 00. Freight—
On weight goods generally,	50 cts. per hundred
On measurement goods -	13 cts. per cubic ft.
On brls. wet (except molasses and oil) - - -	1 50 per barrel.
On brls. dry (except lime) -	80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery - - -	40 cts. per hundred
Oh hhds. and pipes of liquor, not over 120 gallons -	$5 00 per hhd.
On molasses and oil -	$6 00 per hhd.

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THOMAS PURSE,
Gen'l Sup't Transportation.

SOUTH CAROLINA RAILROAD.—A PASsenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily - - - - - - -	$26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia - - -	22 00

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JOHN KING, Jr., Agent.

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REEVES, BUCK & CO., Philadelphia.
ROBERT NICHOLS, *Agent*,
No. 79 Water St., New York.

AMERICAN RAILROAD JOURNAL.

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☞ LETTERS and COMMUNICATIONS for this Journal may be directed to the *Editor*,

HENRY V. POOR, 54 WALL ST.